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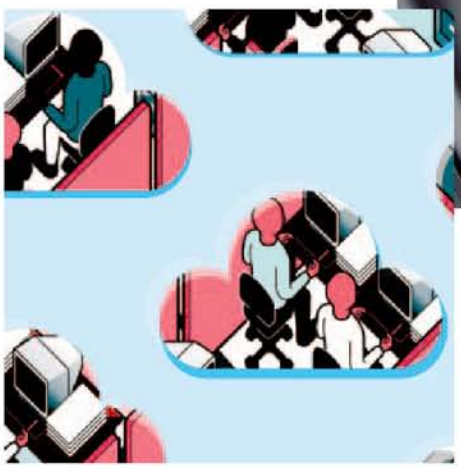


Our new Retro features series takes you back a few decades

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Editorial



kelvyn.taylor@incisivemedia.com

New technology, new problems

We look at how to solve broadband problems, and the failed successor to the ZX Spectrum in our new Retro section

For many people, broadband internet access from home is no longer a discretionary luxury, but a necessity. Email, online banking and shopping, social networking and downloadable entertainment, while perhaps not strictly essential, are things we now find it harder than ever to live without.

In fact, broadband is becoming more and more of a utility, like water and electricity services. For the generation who've grown up with the internet, the idea of living without it is almost inconceivable, much as a previous generation would have struggled to live without a phone when their elders were communicating via post and telegraph.

A five-year-old today will likely be puzzled when confronted with a rotary dial telephone, just as I was puzzled by the old British Relay 'wireless' in my grandparents' house. That same five-year-old's children will no doubt one day be just as puzzled by archaic 'broadband' connections that need wires to get double-digit download speeds.

'Broadband is becoming more and more of a utility, like water and electricity services'

This nearly-a-utility status of broadband was emphasised recently by the Government's Digital Britain interim report, which, although short on concrete detail, is clearly trying to encourage a version of BT's current Universal Service Obligation (USO) for fixed-line phone services to be applied to basic 2Mbits/sec broadband services in the UK (see news on page 8 for more on this).

According to the report, those households – numbering about 1.8 million – without access to a 2Mbits/sec BT broadband service will need to be serviced by fixed line, mobile and cable services.

Of course, the downside of us getting so used to having a fat internet pipe is that when it breaks, it's even more annoying. Those raised on dial-up connections may be used to wildly fluctuating download speeds, dropped connections and so on, but nowadays we expect it to just work.

Sadly the reality is that DSL, mobile and cable services can be just as flaky as a V.90 modem over a homemade bell-wire extension cable. The connection chain is now more complex, taking in network cards, routers, DSL modems and so on, making troubleshooting more complex.

So this month, starting on page 28, we've put together a bumper guide to solving problems with your broadband, showing you the potential trouble spots and how to fix most of the common problems people encounter. I hope it saves you some hours of frustration holding on customer support lines, and at least it will help you collect some good ammunition if your under-performing connection does turn out to be the fault of your ISP.

This month also sees the return of an old *PCW* favourite section, albeit in a slightly different guise. On page 53 you can read the first of our new Retro articles, which will feature facsimile articles of historic reviews and features from the *PCW* archives. We're kicking off with our 1984 review of the Sinclair QL, which was Clive Sinclair's ultimately unsuccessful attempt to build a successor to the popular ZX Spectrum. Clive Akass managed to track down the chief hardware designer, David Karlin, for an exclusive interview about the QL's chequered history that you can read on page 14.

We hope you enjoy the new section, and if there's any fondly remembered product or article you'd like to see featured, just let us know at the email address above and we'll do our best to dig it out of the archives for a future edition. **PCW**

We are always happy to hear from you, email us at letters@pcw.co.uk

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Chief hardware designer of the Sinclair QL gives the inside story of the machine that could so easily have trumped the Apple Classic

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Broadband plan targets pirates

A new Government report proposing broadband for all by 2012 shows the scale of changes still to come and affects everyone involved in communications: broadcasters, mobile operators, internet service providers and users.

For people who already have broadband the most controversial aspect is a proposal that service providers will be obliged to disclose the names of users who ignore warnings to stop illegal file sharing (see **www.pcw.co.uk/2235380**).

But the 40 per cent of the population not yet connected, and those still restricted to slow dial-up, are more likely to be exercised by the proposals for universal access at a minimum 2Mbits/sec.

Coincidentally, as the Digital Britain report was released, Astra announced a new two-way satellite service that already offers this, albeit not at a universally affordable price (see page 12). The report from communications minister Stephen Carter is described as "interim" and is more a summary of priorities and decisions to be made than a set of concrete proposals. He is due to produce a final report in June and has invited comments, but it is hard to see how some issues will be clearer by then.

The report talks, for instance, of seeing how effective investments by BT and cable giant Virgin Media are in improving infrastructure before deciding if the Government needs to put in money.

It also talks of imposing a Universal Service Obligation (USO) of a kind first applied to the Royal Mail in 1840, ensuring that all areas could get a similar level of service at the same price. This sensibly treats web access as a utility like electricity but it is unclear how a USO would operate in a free market.

The USO worked when the Post Office was a monopoly but put it at a disadvantage when postal services were thrown to the market. BT, which inherited the USO when it was privatised in 1984, was similarly disadvantaged.

The report has a lot to say about the future of radio and TV but the most important infrastructure decisions relate to the spectrum freed up by the switch from analogue to digital broadcasting. It identifies as of particular interest to mobile operators frequencies around 800MHz, which propagate well in cities.

The report proposes that the multi-billion-pound fixed-term licences of 3G operators be made indefinite to encourage investment, with call charges set at a level that operators can recoup costs.

The report was welcomed by the Internet Service Providers' Association, which said it was pleased the Government had abandoned the idea of disconnecting illegal file sharers and had shown a commitment to working with the industry to maximise the potential of the internet.

But Douglas Chalmers of the Country Land and Business Association said families would remain disadvantaged and rural businesses would be unable to reach potential unless the Government was prepared to invest in broadband. *Clive Akass*

● **Read the Digital Britain interim report at www.tinyurl.com/cxs6tp.**

Windows 7 on fast track for release

Windows 7 is being fast-tracked to market by skipping the usual Beta 2 phase and going straight through to the pre-launch Release Candidate stage.

But Microsoft stressed in a blog that this does not signal a change in the final launch date, set for the end of this year or early 2010.

The response to the Beta 1 release has been largely positive, and Microsoft says many people have moved all their machines to the new operating system.

Internet Explorer 8 web browser has moved one step closer to its final release with the launch of the first Release Candidate build. Among the changes in the latest update are improved security and a number of stability and compatibility fixes.



The Beta 1 release of Windows 7 has gone down well with testers

Microsoft warned that the release candidate should not be installed on systems running the Windows 7 beta, which already has a version and needs a separate update. Dean Hachamovitch, team general manager for Internet Explorer, said in a blog posting that "the IE8 product is effectively complete and done".

IE8 does seem stable, though one reader reported that it froze on him – see our Test Bed blog (**www.tinyurl.com/cz78pe**), which also has a full list of new features.

Risk overstated for kid surfers

Children surfing the web are at no greater risk than when they are offline, according to a US report.

It says internet-related sexual exploitation of young people remains a concern, but research showed it usually involves adolescents well aware that they are engaging with an adult with a view to sexual activity.

The biggest problem for young people, online or off, is bullying and harassment by their own age group, says the report from the Internet Safety Technical Task Force, a group of businesses, academics and non-profit groups

The group based its findings on a review of existing research, submissions from social-networking sites, and a second report from a technical advisory group. Most of the research pre-dates the rise of social networks, an area that needs further investigation, the group says.

But the research shows that "the risks minors face online are complex and multifaceted and are in most cases not significantly more than those they face offline, and that as they get older minors themselves contribute to some of the problems."

It adds: "Unwanted exposure to pornography does occur online, but those most likely to be exposed are those seeking it out, such as older male minors."

The report says the youngsters in most danger often "have difficulties in other parts of their lives. The psychosocial make-up of and family dynamics surrounding particular minors are better predictors of risk than the use of specific media or technologies."

UK firm releases software for parents to spy on kids

A UK firm is offering software that allows parents to see everything their children do online – without them knowing.



The £39.97 package, Spysure, was launched only days after the reassuring US report on child safety, highlighted above. It records website visits, email, online chat and any other keyboard input and can take scheduled screen grabs.

The software can record online chats

Zafar Majid, founder of the Spysure company, admitted he had had mixed reactions from parents. Some said they would never use the software. "Others have said: 'Look, we live in a dangerous world. Children have to be protected'."

Majid said the software protected children from pornography as well as predators. "Pornography may not cause physical harm but mentally it is a form of pollution you need to guard your children against."

The software's stealth mode can be turned off, but some parents will choose not to, which could make their child feel betrayed. Majid said: "There's a great body of opinion on either side of that argument."

→ **www.spysure.com**

Toshiba launches Snapdragon mobile

Toshiba has unveiled a handset running on Qualcomm's Snapdragon, one of the ARM-based systems-on-a-chip competing with Intel's ultra-mobile offerings.

The TG01 phone has a 4.1in touchscreen and is just 9mm thick, making it slimmer and with a bigger screen than its competitors. It also has an impressive 800x480 WVGA screen and a microSD slot supporting cards holding up to 32GB.

The TGO1 smartphone also includes the usual collection of 3G, Bluetooth, Wifi and GPS features.

The TG01 has a large WVGA screen



Freescale, formerly the semiconductor arm of Motorola, has launched a netbook reference design using its ARM Cortex A8-cored SoC, the iMX515. The platform uses Canonical's Ubuntu OS that is being optimised for ARM, and a new power-management chip.

The Mobile World Congress, featuring similar devices, opens in Barcelona this month, so check out our website at **www.pcw.co.uk** for more coverage

Going mobile

It's simpler than ever to work on the go and *The Ultimate Guide to Going Mobile* will show you how. Available from newsagents at £5.99.



Smart searches

Engineering companies could save thousands re-using old designs – if they could find them in their archives, says start-up Cadfind. It has launched the product, Sketch and Find, which can locate lookalike 2D or 3D designs from a sketch.

Another company, Bolide Software, has launched a $29.95 (£21.17) product called Audio Comparer 1 that 'listens' to a file and locates soundalikes.

→ **www.sketchandsearch.com**
→ **audiocomparer.com**

New AMD chips

AMD launched five Phenom II processors for its Dragon platform for 'affordable' gaming, video processing and entertainment.

They include the triple-core X3 710 and 720, clocking 2.6GHz and 2.8GHz respectively. The 720 costs $145 (£99), which AMD says is $20 cheaper than Intel's Core 2 Duo E8400, which is faster on a number of metrics.

The other processors are all quad-cores: the 2.6GHz 910 and 819, both clicking 2.6GHz, and the 2.5GHz 805.

● AMD and Intel hit – see page 10.

In brief

Barrett retires

Intel chairman Craig Barrett is to retire in May. Jane Shaw, a board member since 1993, will replace him. Barrett has been with Intel since 1974 and was chief executive from 1998 to 2005, when Paul Otellini took the job.
→ **www.pcw.co.uk/2234976**

Computer pill

Philips is testing a computerised pill that releases medicine in controlled bursts inside the body and can be switched off wirelessly should problems arise.
→ **www.pcw.co.uk/2235575**

Solar threat

Solar storms expected to peak in 2012 are likely to damage internet infrastructure and disrupt GPS navigation, says a report from the US National Academy of Sciences. Similar events burned out telegraph wires in 1859 and disabled some of Canada's energy grid in 1989.
→ **www.pcw.co.uk/2233914**

Dodgy fix

Seagate was flooded with complaints on its official forum when a firmware fix rendered many 500GB hard drives in its Barracuda 7200.11 range inaccessible. Seagate said the problem would be fixed... with a firmware upgrade.
→ **www.pcw.co.uk/2234748**

Intel in dock

Intel's request for more time to prepare a defence in a European Union monopolies case has been turned down. It was due to file a response by last October to AMD claims that it illegally offered discounts to vendors for favouring Intel chips.
→ **www.pcw.co.uk/2235318**

Graphics blips

Graphics chip shipments in the final three months of 2008 dropped by 34 per cent over the previous quarter, according to estimates from Jon Peddie Research. Nvidia clawed back some market share from AMD.
→ **www.pcw.co.uk/2235399**

A smart power supply, at last

A US company has launched the makings of a universal power supply similar to one proposed several times in *PCW* over the past few years.

We have repeatedly asked why the plug-and-play system, under which devices exchange data on their requirements when connected, could not be extended to smart power supplies – thus getting rid of the annoying multiplicity of power adapters.

Green Plug offers a chip and software that can be embedded in power supplies and client devices to do this. It proposes a system based on USB connectors adapted to be able to deliver up to 24V but also power standard USB devices. The system is to be implemented in a power adapter from a company called Innergie this summer.

Green Plug was founded by Frank Paniagua, who also co-founded the Vesa standards body for video connections. He claims the Green Plug can save energy because unused ports, unlike some power adapters, are powered off when a device is switched off.

He has set up a site at **www.tinyurl.com/c4nyee**, where people can register their support for the idea. Paniagua says the estimated 2.2 billion power adapters sold last year alone would be redundant if multi-socket Green Plug smart power supplies were installed in hotel rooms, homes, offices and anywhere where devices are used.

Late last year a group called the Wireless Power Consortium was formed to develop a standard for wireless delivery of power. The power would be delivered inductively, as in any transformer, except that the primary and secondary windings would be in separate devices. But initial plans are for a maximum power of only 5W – not enough even for a small laptop.
→ **www.greenplug.us**

The what's watt of Fujitsu-Siemens' zero-drain PC

Fujitsu-Siemens Computers is to launch a PC that draws zero watts on standby while remaining alert to remote system calls. It won't yet say how the system works, but recently released a similarly frugal monitor with an internal battery to keep it live.

One reader of our Test Bed report on the new PC (**www.tinyurl.com/c8e9yo**) dismissed it as a marketing gimmick, arguing that standby power is now negligible and that the loss is anyway offset by a micro-reduction in heating power. It's a nice point, but devices tend to be on standby when the heating is off; and the argument turns on its head in hot weather, as you'd waste more power on cooling.

Britain's Energy Saving Trust believes devices on standby cost a home an average £37 a year – the equivalent nationally of a 700MW power station.

The US government's Lawrence Livermore Laboratory offers some startling figures on standby power after testing a variety of devices (**www.tinyurl.com/cydmz2**). The power drain of desktops averaged 2.8W when switched off at the PC, with some models drawing above 9W; the average drain in sleep mode was 21.13W, more than some full-on notebooks. The worst offender drew 83.3W.
→ **www.energysavingtrust.org.uk**



Fujitsu-Siemens Computers' new zero-drain PC

Credit crunch hits jobs at AMD and Intel

AMD and Intel have been tightening their belts as the downturn hits processor sales.

AMD announced 1,100 job losses and salary cuts that affect even chief executive Dirk Meyer and chairman Hector Ruiz, who lose a fifth of their pay packets.

Intel, reporting a 90 per cent drop in profits in the final three months of 2008, said it would not cut back on R&D and would bring its 32nm fabs online later this year. But days later it announced the closure of two facilities in Malaysia, one in the Philippines and two US fabs. Sources estimate that up to 12,000 of Intel's 84,000 staff could lose their jobs this year.

The rivalry with AMD continues unabated however. Intel plans to counter AMD's newly launched Neo processor for 'ultra-thin' laptops with a consumer ultra-low voltage (CULV) platform this year (see **www.pcw.co.uk/2234307**).

It also announced price cuts of almost 50 per cent on its dual-core Celeron and Xeon products; the quad-core Q9650 now costs 40 per cent less.

AMD confirmed plans for a dual-core Neo this year and launched a new 760G chipset, with integrated DirectX 10-compatible graphics that can be boosted by adding an ATI Radeon HD 3450 or HD 2400 series adapter card.

Archos rivals its own players

Mobile multimedia pioneer Archos is launching a low-cost mini-laptop capable of playing the same content as its media players. But the company denies that the new minis will undercut the market for standalone players.

Senior marketing manager Rai Durand insists that people will want three devices: a mobile phone, a standalone media player for entertainment, and a portable computer for work and web access.

One of the great debates about device evolution is whether general-purpose minis will supersede special-purpose devices. The majority view in the industry has been they won't; but these are early days and a new generation of power-efficient processors (x86 and ARM cored) is about to come on stream as mini-formats become more streamlined and usable.



Archos 10... designed for entertainment, but it's heavy at 1.3kg

The £349 Archos 10 weighs 1.3kg, which is heavy for a mini, so Durand may have a point in saying people would prefer to carry a smaller media player.

He also argues that many people do not want the complexity of minis, which are basically portable PCs. This was the argument used by Palm, which created handheld devices that did a few things well. Yet once Palm users mastered these, they started to look for more functionality.

The Archos 10 is targeted at those who buy the company's players. It offers easy access to its video-on-demand service, plus the Deezer music service, and bundles VTuner software for accessing web TV and radio. *Clive Akass*

→ **www.archos.com**

Never mind the Klingons... whither the keyboard?

A *PCW* Test Bed blog has irritated Trekkie readers by confusing Klingons with Vulcans, but it raised a serious point. It was about a new £44 Klingon keyboard (pictured) and we asked if keyboards would survive very far into the future.

Microsoft seems bent on killing off the keyboard, starting with Windows 7, which has many features designed for touchscreens.



Top: The Klingon keyboard, available from www.cherrykeyboardsrus.co.uk
Left: Albatron's touchscreen monitor

Albatron has announced a touch monitor supporting Win7 features and claims it offers a cheap way to implement them. Instead of the usual resistive or capacitive layer to register touch, the Optical Touch Monitor (OTM) uses infra-red sensors and reflection bars.

Touch control is even coming to digital radio. An 'advanced DAB' system from Frontier Silicon give radios touchscreen controls and the ability to display full-colour graphics and information. The system will also enable interactive advertising.

● Will the keyboard die? Add your comments and Trekkie brickbats to our blog at **www.tinyurl.com/bzkc34**.

New Sony ultraportable goes into big pockets

Sony gave us an early look at its Vaio P-series ultraportable, which it describes as pocketable. This is true, if you are talking large overcoat pouches, but you'd be hard put to stash one in a jacket.



The Vaio P is very portable, weighing 638g

The new model is, however, very light and portable (638g and 1.2x24.5x19.8cm) and much better than Sony's first mini, the UX1.

Other manufacturers, notably Dell, have been in the curious business of talking down the computing power of their minis for fear of reducing the market for more expensive models. But the new Vaio is configured, priced and promoted as a fully-fledged high-end notebook.

The £849 entry-level P11Z has 2GB of Ram, a 60GB hard disk, SIM-free 3G HSDPA, Wifi, Bluetooth, a webcam, GPS, and an Atom Z520 processor, and runs Vista Home. It has a 1,600x768 resolution 8in widescreen. For a fuller description see our blog at **www.tinyurl.com/d2pnzj**.

Hands-on guide to peripherals



Peripherals vendor Kensington is using a chart of hand sizes to help users adjust a notebook stand so it presents the display at the right height. It's based on a US Army system that relates hands to height, though the company could give no details at a London showcase of its latest range.

This includes an £89.99 USB2 universal docking station with a four-port hub, Ethernet, and a VGA port. It is a little thinner than the similar Toshiba product and is designed to double as a notebook rest. Kensington also offers a smaller version without Ethernet, and a neat adapter for extending your desktop to a second monitor via a USB port.

RSI sufferers might like Kensington's £69.99 Slimblade Trackball, which acts as multifunction mouse and feels pleasantly like a hand massage in use. Also of interest was a monitor stand (top picture) that clamps to a top table – ideal for keeping your workspaces clear.

Handheld HD



Sanyo has launched two miniature cameras that it says are the first to shoot full 1080p HD video at 60 frames per second (fps). The Xacti VPC-FH1 and VPC-HD2000 are among six new models described as dual cameras as they can take both stills and video.

They include two underwater cameras, and two compact models shooting at a maximum 720p. The new range will be available in March, but prices have yet to be announced. For more details see **www.pcw.co.uk/2234885**.

UWB portable

French start-up Leyio has unveiled one of the first portable storage devices to use high-speed Ultra-Wideband (UWB) links to transfer files.

The Portable Sharing Device (PSD) holds 16GB that can be transferred with a flick of the wrist. A 3MB image takes just a fraction of a second, according to Leyio, while a video clip will beam across in about 20 seconds.

There have been doubts over the future of UWB recently, notably after Intel dropped work on the technology. It is being used for purposes such as wireless docking stations, but these are thin on the ground at the moment so Leyio will presumably have to ship its PSD with a dongle to UWB-enable a host PC.

Pricing is yet to be confirmed, but the PSD should be hitting shelves in this country at the end of March.

→ **www.leyio.com**

Skype video

Skype 4.0, the latest version of the IP telephony software, makes it easier to start a video call and improves full-screen video quality, the company says.

It also has software designed to optimise call quality for the available bandwidth, enabling video calling even on a low-speed connection. Skype claims up to 30 frames per second is possible with a fast enough connection, a dual-core PC and a Skype-certified webcam.

A new audio codec is said to need only half the bandwidth previously required and adjusts quickly to fluctuating line conditions to ensure the most reliable sound quality. You can download it at **www.tinyurl.com/yntgrg**.

Wimax blow

Telecommunications giant Nortel has said it is to discontinue its mobile Wimax business as part of a restructuring process after filing for bankruptcy protection in order to stay afloat.

→ **www.pcw.co.uk/2233994**

Vodafone tests 21Mbit HSPA+

Vodafone is testing high-speed HSPA+ mobile links that could hit speeds of 21Mbits/sec.

It has already achieved data download rates of 16Mbits/sec but plans to boost rates using Mimo technology (multiple antennas in both the transmitter and receiver) similar to that used in Wifi.

It will also use 64QAM (quadrature amplitude modulation), a method of using phase and amplitude shifts to squeeze more bits into a signal. If the trials go well Vodafone intends to deploy the technology in "selected commercial networks".

"Demonstrating a live HSPA+ high-speed connection has been a key milestone in continuing to build confidence in this new technology," said Vodafone global networks director Andy MacLeod.

Mobile links today are rated at 7.2Mbits/sec on the downlink though real throughput is less.

Vodafone says HSPA+ will be able to deliver upwards of 13Mbits/sec in good conditions, with typical speeds of around 4Mbits/sec.

Telecoms vendor Huawei has announced hardware for HSPA+ networks capable of speeds of up to 21Mbits/sec. Vodafone confirmed a 'strategic relationship' early this month with Huawei in the presence of Prime Minister Gordon Brown and Korean premier Wen Jiabao *Daniel Robinson*

Orange launches first PAYG Blackberry

Mobile operator Orange has launched the first UK pay-as-you-go (PAYG) Blackberry internet service – but you have to buy a £145 Blackberry Pearl 8120 handset as part of the deal.

The service provides access to email, social networks, messaging and the web on the move through any existing PAYG Animal package. It was unclear as we went to press how the billing will work, although there will be a £5 monthly subscription charge.

"With nearly two-thirds of UK mobile customers now using PAYG, we are pleased to be the first operator to offer Blackberry on PAYG in the UK," said Pippa Dunn, director of PAYG for Orange UK.



Meanwhile Blackberry developer RIM has launched a Blackberry application store similar to Apple's App store and Google's Android market. Vendors will submit their software to RIM, which will decide whether to stock it in an evaluation process similar to Apple's.

I've been trying out a Blackberry Bold handset (left), courtesy of Vodafone, to test some services including eMerit, which allows you to use your phone to receive credit card payments. I'll be writing more about that next month. But, as someone who is not a fan of micro-Qwerty pads, I found the one on Bold is the easiest to use. *Clive Akass*

Satellite broadband fills in 'notspots'

A new two-way satellite service offers to reach places other broadband providers do not – and at prices pitched for home users.

The entry-level Astra2Connect (A2C) service (**www.tinyurl.com/5qqxtq**) costs £19.99 a month for a 256/64Kbits/sec (downlink/uplink) provided you pay a year in advance.

Other monthly prices are: £29.99 for 512/96Kbits/sec, and £39.99 and £75.99 respectively for 1Mbit/sec and 2Mbits/sec, both with a 128Kbits/sec uplink.

Paying monthly costs you £5 a month more in each case and there is a £299.99 charge for an installation kit including a modem, an aerial and mountings, and a gizmo that helps you align the dish for an optimal signal.

Mike Locke, special projects officer at Eurosat, which is running the UK ground side of the operation, said installation is simple for people "who don't mind getting up a ladder" but you can have the system installed by a specialist for £100.

The prices are similar to those of first-generation ADSL services, but Locke said the system does not aim to compete with existing broadband providers. "We are targeting people who can't get broadband, offering them a faster alternative to dial-up."

He said that Eurosat has identified thousands of 'notspots' where people are unable to get DSL broadband.

A2C differs from previous UK consumer satellite products in that it does not use a landline for the uplink. This means internet use does not need a phone line.

Existing satellite dishes cannot be used for the service because they are not built to the precision required for the satellite uplink, Locke said. But the A2C dish can be used to receive Sky or Freesat broadcasts provided you buy an additional £49.99 Low Noise Block (LNB).

→ **www.eurosat.co.uk**

No excuses with school minis

The Bett IT-in-education show was awash with mini laptops, raising the question of whether these devices signal a further cultural shift from paper to screen.

Several, including Intel's Classmate education reference design, have a touchscreen mode and include handwriting recognition. That means a new generation of children untrammelled by the assumptions of a paper-based culture will be bashing away at the interface and will surely go on to develop new ways to interact with a computer.

Touchscreens may even improve children's handwriting, at least when display textures improve, as otherwise the computer may not understand them. Youngsters will discover that these screens are a lot better than a mobile phone keypad for sending messages.

For better or worse mini laptops, capable of holding entire libraries of information, could also see off expensive textbooks.



NEC is selling a version of the sturdy Classmate design called the Otomo

Toshiba, HP, Asus, Acer, NEC, and Kohjinsha all showed minis at budget-friendly prices. Most come with a package of software and services designed for the classroom.

NEC, which is selling a version of the Classmate called the Otomo, offers a suite of applications to help pupils, teachers and parents – there are controls for restricting internet use. Anti-theft software requires each machine to connect to the school server at certain times; if it doesn't, the machine is rendered inoperable.

The Classmate has a good robust design, though boys may object to it as it looks not unlike a girl's bag (for which reason, on NEC's Otomo version of the laptop, the handle has been made detachable).

Another feature of the Otomo and other minis on show was that they include a webcam, which in theory should enable teachers to keep a closer eye on their pupils. Does this mean an end to messing about at the back of the classroom? Doubtless youngsters will find webcam blindspots, just as speedy drivers avoid known speed traps. But little Johnny will find it harder to get away with: "It wasn't me, Miss."

D-Link hyperzoom homes in on education market

Webcams on school laptops (see above) are toys compared with the Securicam DCS 3415, which D-Link showed at Bett. It has an 18x zoom, allowing you to close in on suspicious activity – though pupils will be relieved to know that it is designed for building surveillance rather than for keeping a class in order.



The Securicam DCS 3415 has an 18x zoom

It supports power-over-Ethernet, and so does not required a separate mains lead. There's no news on UK prices yet but it sells in the US for $1,499.

Incidentally D-Link tells us the great Wifi fried-brains scare seems to have blown itself out, at least for now, with few schools expressing reservations about using the technology. But the company has been concerned enough to produce a pamphlet to reassure parents and teachers following the much-criticised *Panorama* program on the subject.

Robot points to classrooms of future

Schools are being asked to sign up to a charter that sets out how to make the best use of computing technology in class.

The Next Generation Learning Charter was launched at Bett by Government education agency Becta, which also launched a Microsoft-backed Home Access scheme to ensure students have safe access to the internet at home.

UK education IT pioneer RM showed an 'imaginarium', a high-tech learning space that includes an interactive classroom. Among the teaching aids was an ED-E robot from MechRC designed to teach ideas such as the physics of walking and programming. Its wide range of movement is made possible by 17 servo motors.

Programming involves a kind of movie strip; pupils drag one of the robot's points to a required position and indicate how long they want the movement to take.



MechRC's ED-E robot can be used to teach ideas such as programming

Cut prices

Bett is always full of desirable gadgets, though how many schools can afford them is another matter. However, prices are coming down. Roland's computer-controlled cutters, which can be used to cut shapes out of cardboard and other material, start at £265 and distributor Techsoft sells a Graphtec model for £165.

→ **www.techsoft.co.uk**



£500 3D printer

3D printers, which can cost tens of thousands of pounds, have shown a more spectacular price crash in the form of Unimatic's Rapman (above). The company is selling a DIY version for "under £500", but be warned that it involves soldering surface-mounted components. You can choose to pay the £250 extra for a fully built model. But don't start getting any big ideas – it is designed for rapid prototyping of small 3D plastic objects.

→ **www.unimatic.co.uk**



Student PDA

O2 launched a wireless handheld, the XDA Flint, specifically for the education market, pitching it for use on field trips or as an ebook reader. It runs Windows Mobile 6.1 and has an unusually large 5in touchscreen and detachable Qwerty keyboard. It functions as a quad-band 3G and supports Wifi. Prices start at £447.

→ **www.my-xda.com**

The Mac that never was

The Sinclair QL was launched only days before Apple's GUI classic 25 years ago and could so easily have trumped it. Clive Akass gets the inside story from designer David Karlin

In 1982 David Karlin went to a recruitment agency to be interviewed for a job he did not get. "We might have something else for you," the recruitment agent said. "Would you like to meet Clive Sinclair?"

Ten minutes later he was talking to the man already famous for the ZX80 and Spectrum home computers. Karlin found himself hired as lead hardware designer for Sinclair's next big project, a computer that became known as the Sinclair QL. He was just 24 years old.

"I found out later that Sinclair had advertised for the world's best computer designer," he recalled on the 25th anniversary of the QL launch. "I got ribbed mercilessly about it long afterwards."

Karlin was already an industry veteran. He got into electronics at school in the mid-1970s and became fascinated by the newly emerging logic modules. In his gap year before going to Cambridge University, and during one summer break, he worked at the Royal Signals and Radar Establishment (RSRE) at Malvern, where radar was developed.

"There were some truly brilliant people there, really friendly, and I was prepared to sit there and lap it all up," he said. While there he designed a computer from scratch and worked on syntax analysers and parsers for a project to clean up old high-level programs. He also saw a display editor, an early form of word processor. "It blew me away. I thought this will change the way the world does things."

There was no computer science course at Cambridge at the time. To study the subject you did a general engineering course for two years and then an Electrical Science Tripos in the third. Karlin said by that time, thanks to the RSRE, he knew more about computers than some of his lecturers.

He got a job in the US with Fairchild Semiconductors, which Gordon Moore and Robert Noyce had left in 1968 to form Intel. But, as a condition for his US visa he had to work for 18 months at a Fairchild factory in Singapore.

This was beyond the pale by the standards of some at Cambridge, which still suffered from a stultifying snobbery that looked down on anything smacking of trade (and got its comeuppance with the alliance of industry and academia that made Silicon Valley).

"Research was the one true faith," Karlin said: "But I loved working in the factory. I was doing production engineering on memory chips, so it was all about trying to get yields up. I thought it was brilliant... the whole discipline of having to organise these huge groups of people doing highly technical things that few people understood and somehow getting a real product out of the door that people want."

A year and a half later he was researching digital signal processors at the Fairchild labs in Palo Alto at the heart of Silicon Valley. He was using the Vax VMS multitasking operating system. Next door was the famous Xerox Parc lab where the first graphical user interface

QL versus the Mac... could Sinclair have been right not to use a GUI?

The first Apple Mac, launched just a few days after the QL, turned an engineer's tool into something anyone could use and many could afford.

Even into the late 1970s computing was seen as the preserve of geniuses. Attitudes began to change with the advent of early desktops but only for people undaunted by strange commands and what looked suspiciously like algebra.

As Karlin (see article above) pointed out, the Mac's real innovation was its price point. Apple didn't invent the GUI, and it was already selling a business computer with one: the Lisa, costing a minimum $10,000 (then around £6,600). The Mac started at around $2,500 (around £1,700, equivalent to roughly twice as much today).

The QL was launched at £399, considerably cheaper even if you bought a monitor. Yet it had a similar spec and was in some ways more advanced: colour rather than mono, and with a pre-emptive multitasking operating system compared with the Mac's single-tasking Finder. If you factor in the cost of a monitor, a mouse and a floppy drive, it seems Sinclair could have sold a Mac-type device for much less than Apple, though a GUI would have added to development costs.

But maybe Sinclair was right to hold back on the GUI, as Microsoft did, because computers of the day were not up to the task. The Mac was good because it popularised the GUI, and it was good for Apple because the focus on graphics earned it a following in the design and publishing markets. But not until a decade later did we see mainstream computers capable of taking the overhead of a GUI without a bad hit on the performance of common applications.



Left: the Mac Classic – the original Apple Mac – and, right, the Sinclair QL

	MAC CLASSIC	SINCLAIR QL
CPU	Motorola MC68000	Motorola MC68008
Clock speed	8MHz	8MHz
Memory	128KB – later 512KB	128KB expandable to 640KB
Ports	Mouse, one SCSI, external disk, modem, sound	Two serial (see main story) Two joystick
Network	None	Two proprietary ports
Display	512x342 mono, built-in 9in screen	256x256 eight colour 512x256 four colour, TV or monitor (not bundled)
Storage	400KB floppy	Two 128KB microdrives

→ SINCLAIR QL REVIEW Read the original review printed in a 1984 issue of PCW on page 53





Above: QL with monitor, printer and spare microdrive cartridges Right: Clive Sinclair at the QL launch. Pictures courtesy Urs König (aka cowo) www.tinyurl.com/9ryma3

(GUI) was developed. Karlin, like Steve Jobs and Apple engineers, saw it and was impressed.

But his then wife wanted to go back home to England, which is how he came to be hired by Sinclair. "What I now realise – and obviously I was very young and inexperienced – is that Clive's objectives were completely different from mine."

Karlin's idea was to do exactly what Apple did with the first Mac (which, of course, he had not seen): build an affordable version of the Xerox Star, the first commercial GUI-driven computer, prices of which started at $16,000. "My vision was of a Star and a printer for under £1,000, making any compromises necessary to do it... It also needed to have a proper monitor, not a telly."

Sinclair was not interested in anything that cost more than £500. He preferred a price point of £300, but would stretch to £400. Karlin said: "Where Clive is coming from is: 'I have a smash hit with the Spectrum and I want to produce something bigger and better but I am not sure what.'"

One casualty of this clash of interests was the QL's TV interface. Karlin had aimed for the highest resolutions he could get – a 512x256 four-colour screen, or a 256x256 eight-colour one. When the TV interface was added late in the development process, at Sinclair's insistence, "it was a bit shambolic because I never intended it to be there in the first place," said Karlin.

Then there was the saga of the microdrives, an improved version of a storage technology designed for the Spectrum. "They were a quite extraordinary piece of technology, really," said Karlin. "They used a loop of tape that went round in about six to eight seconds, so the random access time was quite tolerable."

Tolerable by the standards of people used to cartridge-tape storage, that is. Karlin would have preferred to use a floppy drive but it would have put costs up too much – or so he thought. "It turned out that Clive was not as good at negotiating with Panasonic [the drive maker] as Alan Sugar was. When we found out what he paid for the disk drives on the PCW [Amstrad's 1985 word processor] it was a horrible moment."



David Karlin left Sinclair Research when it was bought by Amstrad in 1986. He now works as a consultant and runs the Bachtrack website (www.bachtrack.com), providing information on concerts, recordings and all matters musical

Karlin dates his problems with the microdrives to a chance meeting in a corridor with an engineer called Ben Cheese – "a lovely guy who died very young of cancer". Karlin was working on the circuitry to read the microdrive pulses and asked Ben about their duty cycle (the proportion of a time slot taken by a pulse).

"He said very casually that it would be close to 50-50 and I wrote that down," Karlin recalled. He admits now that if he had been more experienced he would have investigated further; in fact, the duty cycle fluctuated slightly and he did not allow enough tolerance.

"I was not sampling very often because in classic Sinclair style I was trying to get away with not using any extra components and doing it all in the logic circuits."

Even that might not have mattered if there had been more development time and money. They did not get a chance to test the system with an actual drive until close to the launch, though a some stage they had samples lacking a custom chip that would be used in the QL. The dodgy circuitry was frozen into a custom chip that would take 11 weeks, and up to £50,000, to replace. Problems when they appeared were too easily blamed on manufacturing glitches that would be ironed out in production.

Another cut corner was in the two serial ports, which used clunky flow control to get round the fact that the chipset allowed for only one. "Everything worked – sort of. Only 'sort of' was not good enough," said Karlin.

Our original review of the QL, reprinted on page 53, shows that people realised the machine had gone to market too early. Its microdrives were notoriously unreliable, though problems were ironed out in later products.

Karlin said that given more experience he would have had a row with Sinclair about timescales. "I'd have certainly fleshed out with him the question of whether we were building a better games machine or a business machine.

"I traded colour and screen access speed [needed by gamers] in favour of raw resolution. I really wanted that high-res bitmap, which was what made the Mac. We had colour but the Mac didn't."

The QL had no mouse but that was easily added, said Karlin. The operating system lacked a GUI, but it did have bitmapped windows, and in some respects was more advanced than the Mac (see box on facing page) – enough for Linux creator Linus Torvalds to buy one. But there was no sense of competing with Apple, except in the final few weeks when the QL launch may have been timed to pre-empt that of the Mac.

The QL fell short of the Quantum Leap its name was supposed to represent. But it could easily have been so much better, said Karlin. "Neither Apple nor Microsoft worried about performance or economy of resources. We made sure we got every ounce of performance out of the hardware."

QL chief software engineer Tony Tebby was "bloody good" and his Superbasic, a combination of a programming language and script language, was more useful than anything Microsoft came up with for years.

"I'd argue that if we had used the architecture that particularly Tony put together... had we used it with the price point and relatively cheap hardware that Apple and IBM has access to, we would have something awesome. Because we did the multitasking properly, I think the usability and general quality of the operating system would have developed into something a lot better than Microsoft or Apple managed." **PCW**

INTERACTIVE

LETTERS

→ **Send your letters to** The Editor, *PCW*, Incisive Media, 32-34 Broadwick Street, London, W1A 2HG **Send your email to** letters@pcw.co.uk

LETTER OF THE MONTH

Battling PC viruses in the developing world

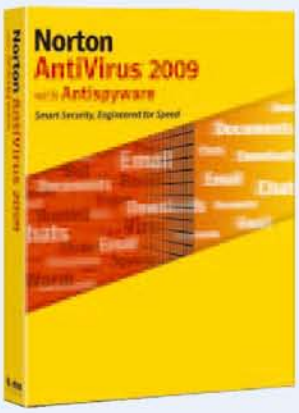
Announcing its decision to make available a free anti-virus package, Microsoft cited the difficulties that users in developing countries face in renewing their subscriptions. Having experienced the virus-infested nightmare of Third World computing, I applaud its move wholeheartedly.

When the rural Melanesian school where I worked received a donation of 12 new computers from an Australian aid agency, we thought a remote island where virtually nobody had internet access would be safe from viruses. However, before long the new computers were flashing up viral messages and switching off at random moments, a problem that the poor students (who are used to half-broken equipment) bore stoically. The viruses had arrived on CDs burned by ignorant Education Ministry officials, or on cheap MP3 players given to students by their rich uncles in town. No sooner had we eradicated a virus than it re-appeared from somewhere. Confused users ignored basic virus-safety advice, and we were left simply praying that nothing really nasty would turn up.

The aid agency had included a Norton anti-virus package with the computers, but with no online updates the software failed miserably to do its job. I was actually grateful when its subscription finally ran out, since the program's constant moaning about being unable to update itself online had become more of a nuisance and worry to the users than the effects of the viruses themselves. We then installed a free anti-virus program, which moaned a lot less than Norton and coped better with the lack of updates, though it did inconvenience us unnecessarily by demanding online re-registration after a year even though the program was free.

I can only hope that Microsoft will avoid such problems with its new Morro offering, and will do for the diseases of Third World computing what its founder Bill Gates is already doing to combat the diseases of the region's human inhabitants.

Andrew Gray



The assumption of always-on broadband can be the downfall of otherwise good software in developing countries

MONITORS OR MIRRORS?

I remember a time when televisions had reflective screens, so during the day they had to be viewed with the curtains closed. Early computer monitors suffered from the same disadvantage until the advent of non-reflective coating. This made it possible to site your computer monitor anywhere in the office and still read your Dos-based Wordstar document. Then came the flat-screen revolution and our desktops were suddenly clear of the bulky CRT monitors that had for so long encroached on our workspace. An advantage of flat panels was that their surfaces were inherently non-reflective. However, in what has to be retrograde step, I have noticed a proliferation of the shiniest screens ever in the new laptops. Sheepish salespeople claim the image is 'sharper' and the colours 'more realistic'. Well, that may be so... if you can see them. I recently saw a row of laptops on display in a well-known PC superstore, and all carried superb pictures of the overhead lighting arrangement, but the actual screen content, however vibrant, was invisible! Surely this is not a sensible design for a piece of mobile equipment I might want to use on a train, in a coffee shop, or even in my office – at least, not without the curtains drawn.

Si Price

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2008, 2009, OR 2010?

I have been reading the February 2009 issue of *PCW*, and I am slightly confused about the mention of dates in the News section. There are several references to 'next year' within the articles, which are not totally clear. One article says "...discontinuing its Live Onecare security product from 30 June next year..." Is that June 2010, or June 2009? I can understand that the articles were written in 2008, so next year would be 2009, but the magazine is dated 2009 therefore next year should be 2010. It is not the only article either. The In Brief section stated "...the EU has agreed to cap the price of mobile texts next year..." Is that 2009 or 2010? It may seem pedantic, but *PCW* is a factual magazine and it's good to be accurate about these facts.
Alan Langley

Kelvyn Taylor writes: Apologies for the confusion Alan, the Onecare article refers to June 2009 as does the EU's agreement to cap the cost of mobile texts.

PLAYING THE NEW PRODUCT GAME

I read Barry Fox's column and his comments on problems he encounters with some products and services with a mixture of amusement, astonishment, and horror in roughly equal measure. Recently I had a similar experience. I bought an Expresscard CF reader. It came in the standard vacuum packaging with a printed card insert giving product details and the maker's website, but there were no drivers or instructions. This led me to believe it was a plug-and-play device like my PCMCIA CF reader, but after it refused to work on either an XP or Vista laptop I eventually discovered it wasn't.

A visit to the maker's website, and an email, finally revealed drivers and manuals were no longer supplied with its products, and had to be downloaded. Why there was no mention of this on the card insert mystifies me. So I downloaded the appropriate drivers and installed them via 'setup.exe' as instructed. This crashed both laptops in turn when trying to use the card reader because the reboot that was needed to complete driver installation wasn't asked for or instigated by 'setup.exe', nor mentioned in the driver installation instructions.

After I got the laptops running again without any side effects, the drivers needed installing again. This time a reboot was needed to complete the process. Thankfully all this hassle resulted in an Expresscard CF card reader with very fast read/write rates conforming to the latest CFIII standard covering the new UDMA CF types. Sometimes this new product game is the devil to play. Especially when it seems the way product information is supplied, or the total lack of it, appears to be going backwards.
Bob Isgar



Lacie replaced the external hard disk PSU despite an out-of-date warranty

ABOVE & BEYOND

We frequently complain about poor service from manufacturers, so it's nice to give some praise for a change. Recently my Lacie external hard disk stopped working after three years or so of regular use. It became clear that the power supply unit (PSU) was faulty, so I contacted Lacie to ask how much a replacement would cost. They said a new PSU had been ordered for me and asked me to return the failed one. A few days later the replacement arrived and the device is working again. Despite being well out of warranty all it cost me was the return postage. Well done Lacie.
John Murthwaite

BROADBAND WOES

Steve Bailey, in his letter about a Virgin Mobile dongle that didn't work, (*PCW* March 2009) does not mention whether he tried authenticating to the SMTP server. I use Outlook and have found, since broadband took off, that most ISPs expect users to authenticate to their SMTP account, ie provide user id and password, usually the same as your Pop account.

This is not necessary sometimes, for instance if you are a legitimate account holder on the ISP that you pay for, but if you are using a different ISP then you will probably have to authenticate. Also check out for Outgoing SMTP port numbers. This is usually 25, but some ISP's such as UK2.net use 443 for security issues and Imap.

I use BT as my home ISP and 3 for my mobile broadband, and they all work fine with Outlook.

Secondly, while Roy Fear (March 2009) writes one of the most eloquent letters I have ever read in your column, I confess I did not understand the full concept regarding Heptiamond Snowflake, and why should I? However, Liberty Basic 4.03 springs to mind as I use it on a regular basis. It is free to download and evaluate at: **http://libertybasic.com**. The unlicensed version allows a new user 250 lines of code that should be enough to impress you. The upgrade to Gold, the licensed version, costs $49.95, and the company says it works with Vista!.
John Ryan

● See also response below from Virgin Media.

REDUCED POWER

Your February 2009 issue provided an interesting contrast of the two main directions of computer development. On one hand we have the core i7-powered systems with multiple graphics cards running Vista, suitable for games and demanding media work. At the other extreme are the Atom-powered netbooks running XP, suitable for the vast majority of tasks that most people regularly perform. After purchasing one of the latter I can confirm it is suitable for word processing, spreadsheets, watching video files, web browsing and so on. It is also quite capable of rendering video content.

After many years bemoaning Intel's emphasis on developing more powerful microprocessors, the need for which is unclear to me, it is good to see they are now addressing the market for cheaper systems with reduced power consumption. It is

CLARIFICATION

● In response to Steve Bailey's Broadband Woes letter (*PCW* March 2009), Virgin Media had this to say: "Customers can use any type of webmail service, such as Hotmail or Gmail, and can also use email from another ISP or email provider through an email program such as Outlook or Outlook Express. In order to do this, customers will need to set up their email program with Authenticated Pop/SMTP details as instructed by their email provider." We also found some mobile broadband providers who offer a dedicated SMTP email address that you can use, but check with your ISP.

↘



A soldering job for brave entrepreneurs?

hoped that Atom processors will be used in laptops and desktop systems. However it remains to be seen if Microsoft will also 'see the light', either by continuing to make XP available or ensuring that Windows 7 is suitable to run on this new generation of reduced, but still very adequate machines.
David Mowbray

GUI COLOURS

Why have video-editing software developers decided to use white and light grey text on a grey background? In your March 2009 issue five of the six packages reviewd in the group test had the same inverted colour scheme.

When I use Adobe Premiere Elements I have to squint at the screen to decide if a menu option is greyed out or not. I may not be in the first flush of youth, but I can still recognise a sparrow 40m away. Remember when using these colour schemes on websites was a big no-no? They obviously can't. An option to change the colour scheme would be preferable.
Alan Fagg

PRODUCT NAMES

Why do so many manufacturers name their products using a string of letters and numbers? Who is going to ask for the Acer Aspire 6935G-844G32Bn laptop in PC World? Or the Philips 42PFL7603D TV? If some manufacturers such as Dell use short names, why can't others? The Japanese manufacturers seem to be the worst offenders. Surely they have the ability to tackle this problem. Potential customers can remember a name or short number, but a string of them is ridiculous.
David Morgan

HD HOME VIDEO

As a home video enthusiast I enjoyed reading the video-editing software group test in *PCW* March 2009. So with all the hubbub about high definition and after purchasing an HDTV I thought it was time to consider HD home video. I've been using Pinnacle Studio 9 with my standard-definition camcorder for several years and had some great results.

I have yet to buy an HD camcorder so I used some footage from the BBC HD channel. As recommended in your Editor's Choice awards I downloaded the trial version of Adobe Premiere Elements 7. Initially the import of a 20-minute HD clip slowed the PC to a crawl, then I cut a one-minute clip to play with. I waited 10 minutes before I was able to export this as an AVCHD file. I noticed in Task Manager that both cores of my Core 2 duo were at 100 per cent, although memory was only at 1.6GB. Luckily I had 3GB in total.

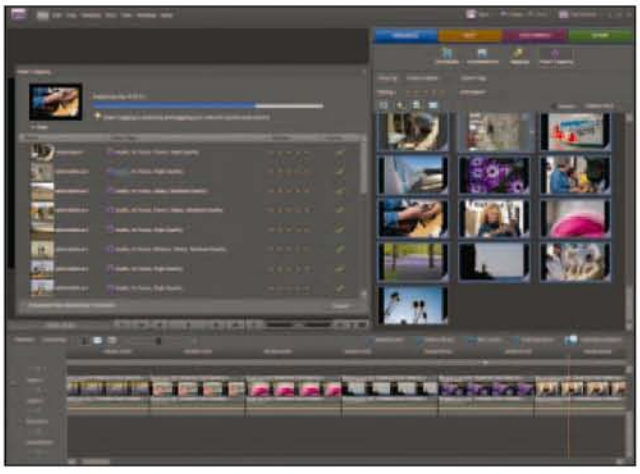
Once the file was ready to play, Quicktime (among other media players) said it didn't have the right codecs to play the clip. So I created an AVCHD hybrid DVD which allowed up to 20 minutes of HD quality on a Blu-ray player. Try burning a DVD though, and you soon discover Premiere Elements 7 can't do it. Unless you have the additional software it only makes Blu-ray discs on a Blu-ray burner.

My PC spec is good enough for all but the latest 3D gaming. So for HD video editing do I need a new quad-core CPU? A bigger hard drive? Blu-ray burner? Additional codecs? Additional video-editing software? I'm glad I tried the free trial from Adobe as I clearly need to reconsider the whole thing until I replace my 16-month-old PC. I'll certainly pay more attention to Gordon Laing and Barry Fox from now on!
Dan Wells

HARDWARE TUTORING

I enjoyed Guy Kewney's article 'Boom time at the corner shop' (*PCW* March 2009). Software is a greater problem than hardware when it comes to support. Some of my relatives have joined the computer revolution and when I talk them through the menus and even mundane settings they often exclaim 'I have never seen that before'. They have no idea what tweaks are possible; Explorer is a mystery and searching for lost files is a black art. I am sure this is not their fault – who on Earth would tinker with their internal combustion engine to nip down to the supermarket?
Cliff Hamer

Guy Kewney writes: Good point! However, I have been amazed at how many people are now taking soldering irons to broken motherboards – and making a little money selling this skill. I had a dead dual-core Athlon 64 motherboard (now fixed). The kid who did this said: "I can get you a new one for 40 quid. But I'll make about a quid on it, and it takes time. If I fix it, it will take me about the same time, and I can charge folks up to 100 quid to repair it." What amazed me was that he was able to do it!



The Adobe Premiere Elements colour scheme can obscure some menu options

WIN Next month's prize for the letter of the month is a Maxell Solid State Drive



Maxell's Solid State Drive (SSD) is the world's first portable dual storage device that combines advanced eSata technology and robust USB connections. Designed to replace existing Hard Disk Drives (HDD), a fundamental advantage of eSata is its exceptional transfer speed which is around three times faster than USB2. A unique storage device that works instantly, rapidly and reliably, SSD is the revolutionary means of storing data, essential for those who have ever experienced the stress and frustration of a slow data transfer or a broken storage device.

For more information on the SSD and other Maxell products please visit **www.maxell.eu**.

Gordon Laing



hardware@pcw.co.uk

Does P stand for Perfect?

Sony's new laptop looks like my ideal portable – but please spare me the bloatware

The fact that arguably the hottest products at the 2009 Consumer Electronics Show, in fabulous Las Vegas, were a tiny laptop and a beta PC operating system shows just how far IT has entered the mainstream. CES wouldn't be CES without the latest in 3D and touch displays, along with cunning means to recharge various devices, but the show was stolen by the public launch of the Windows 7 beta and the official unveiling of Sony's Vaio P.

Microsoft's announcement had the biggest impact outside the show, when unexpectedly high demand for downloading the code brought the Windows servers to their knees. But hang on, a beta operating system stealing the headlines at the annual gadget-fest that is – or at least used to be – CES? Thank goodness for Sony which chose the show to parade its sexiest laptop to date.

'The key to choosing the right laptop is to think about what parts you genuinely need'

The new Vaio P is an ultraportable laptop measuring 245x19.8x120mm and weighing 618g, with an 8in widescreen display, 1,600x768 resolution, the choice of hard disk or solid-state disk (SSD), and an Atom processor. Sony is keen to point out this is not a netbook, but a fully functional laptop which (for better or worse) runs Windows Vista.

Miniaturisation and attractive industrial design are undoubtedly two factors behind the buzz around the Vaio P, but when the initial hype dies down, the important question is how usable it will be in practice. Those looking for a desktop replacement should obviously look elsewhere, but the interesting story will be whether ultraportable fanatics snap it up or stay away.

There's a balance between portability and usability. Removing components, shrinking the unit or simplifying the OS, may not deliver a satisfactory experience. I've been through my fair share of gadgets trying to find the right combination. One of my all-time favourites was the Psion Series 5, but the necessity (or perceived necessity) to run full Windows applications has always drawn me back to ultraportable laptops. The Asus Eee PC had me going for a while, but my current tool of choice is a Sony Vaio TZ series laptop, albeit one running an XP installation.

So is the Vaio P the perfect ultraportable, or has Sony compromised the size and specification to achieve the impressive form factor? After all, the UX-series was also technologically impressive, but you don't see many people using them.

At first glance and touch the Vaio P looks much more promising. The keyboard may be lacking a wrist-rest, but it's surprisingly usable given the dimensions. The screen looks great, although the high resolution at this size could cause some squinting. The Atom may not be the quickest processor, but the Vaio P should run most applications, although surely XP would have delivered a snappier experience than Vista.

There's no room for an optical drive, but this could prove a bigger stumbling block than you might think. Many of us are initially drawn to 'single-spindle' laptops but end up buying something larger and more conservative instead. I chose the Vaio TZ as it was one of the smallest and lightest laptops which still had an optical drive.

I assumed this would let me easily install software, play movies and back up data. But I think I've pressed that eject button five times in the year I've owned it – and most were during the first two or three days.

Having the drive certainly made reinstalling the OS and major applications easier, but it's nothing that couldn't be done with a USB drive and, once operational, the network also becomes an easy means to get data on and off the unit. As for entertainment, rather than carrying multiple discs, I store music and video directly on the hard disk, and for backup, the limited capacity of DVD means I rely on a portable USB hard disk instead.

The key to choosing the right laptop, especially an ultraportable, is to think about what parts you genuinely need. I've learnt I need full Windows compatibility, a screen that's at least 768 pixels tall for application compatibility, a half-decent keyboard and reasonable storage capacity, but can live without the optical drive and the fastest processors. The Vaio P could be my ideal ultraportable, but like the TZ series before it, the default Vista installation and Sony's bloatware will need to go. **PCW**

Barry Fox



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Reasons to be cheerful

Barry Fox has no complaints this month. Here are some products he approves of, pays for and uses

A reader once very reasonably asked: "You are always telling us what's wrong with computer stuff, is there anything you do like?" Yes, plenty. Often I have bought it for hard cash, because it works better than stuff I have been sent for review.

I used to flounder in a sea of business cards until I discovered Cardscan. When used with a matching mini-card scanner, the optical character recognition software gets the a card into searchable database cells and sorts names, addresses and phone numbers. The PC database can sync with Palm and Windows Mobile PDAs without the need for Outlook.

I use Skype, but usually with a Skype-enabled wireless handset made by Philips (the VoIP 841). The handset connects by Dect wireless link to a base station that has an Ethernet socket for connection to a broadband router so it can make and take Skype calls even when the PC is off. The base station can also connect to an ordinary line, giving a choice of Skype or BT connection.

'Perish the thought that some people use it to strip DRM from music streams'

The easy way to handle GSM cellphone contact lists is Phonefile Pro from Pipistrel. This software uses a USB SIM reader to transfer contact data between the phone SIM and PC, for easy entry and editing. The software also reads and prints SMS text messages stored on the SIM. A 'forensic' version lets the police, or suspicious spouses, recover deleted messages.

For an all-round music and movie software player that doesn't behave like Real Player and keep trying to sell upgrades, look no further than VLC, a free download from **www.videolan.org/vlc**.

Total Recorder software digitally captures whatever audio a PC is playing. The music can be a live stream or download. There are many innocent uses, so it is street legal. Perish the thought that some people abuse its powerful capabilities.

Total Recorder offers a 'try before you buy' version. This comes without the need to enter credit card details and then struggle to cancel.

There is a video version of Total Recorder that captures whatever movie material the PC is playing. But it's pricey and so far I have preferred to capture video with hardware; either a PC-to-TV converter box (£40 from Maplins) and Pinnacle video-to-MPEG4 converter box, or Slingcatcher with Projector software that sends video from a PC screen to a TV or DVD recorder.

The first Windows Mobile PDAs were so awful that, although I was given several, I bought a Treo with Palm OS. Now Windows Mobile works well enough for Palm to use it on the latest Treos. All Palm now has to do is design a stylus that does not break in half when you look at it.

I have been given many watches over the years but the one I buy and use is the Timex USB Data Ironman. PC software indexes contacts, birthday reminders and notes such as passport numbers. This is then transferred to the watch by matching USB cable. Heaven knows why Timex does so little to promote these clever devices.

After buying my own Tomtom sat nav and loving it, I bought others as presents. Compare and contrast with the sat navs installed in otherwise wonderful Toyota Prius hybrid electric cars. Toyota's sat nav is so hard to use without constantly referring to the 100-page manual that it's easier to put a Tomtom on the dashboard.

The most useful gadget I ever bought was a cheap KVM switch that lets me run two PCs side by side and share the same keyboard, video monitor and mouse at the press of a button or hot key combination. While one PC is bogged down with yet another update or reboot or virus scan or backup routine, I can do something useful with the other.

Over the years I have tried many speech recognition programs, all promoted as finally making it easier to talk to a PC than type. Most have put gibberish on screen, even after laborious voice training. The latest version of Dragon Naturally Speaking, however, really does seem to understand what I say.

Mr Site is an easy way to register a domain name and design a website. I keep starting to design one that shares hints and tips and problem solutions. But there's always another problem to solve first and the site gets sidelined. **PCW**

Guy Kewney



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Meejaspeak can't cure Vista ills

No amount of corporate circumlocution will enable Microsoft to regain its lost credibility and stay at the top

It can be hard to distinguish between politics and corporate governance; and with Microsoft, it's doubly so. Do politicians say what they mean? Does Steve Ballmer say what he knows to be true?

Ask Microsoft's big boss whether he realises he has dissipated half the company's goodwill, or whether he really thinks Windows 7 will be able to make people forgive him for Vista, and wait for the circumlocutions.

The catchphrase is: "What I can tell you, is..." It's a dead giveaway that says: "I have had meeja training." In the UK, 'media training' for politicians and company directors stems from pioneer Stanley Hyland, a veteran TV presenter who was fed up with the 'rabbit caught in the headlights' stare on the face of newcomers to a TV camera. He set up Hyvision, grilling senior staff in a very realistic studio, then showing them what they looked like on screen.

'Hyland was very clear about one point: some questions must not be answered'

I worked with Hyland in those days and did the training myself. He was very clear about one point: some questions must not be answered. It was Hyland who coined the neat sidestep of answering an easy question that has not been asked rather than a difficult one that has.

What Ballmer can tell you is that so many million copies of Vista have been installed and are being used. He can tell you that a high proportion of PC manufacturers include Vista as the default operating software on the vast majority of their products. He can also tell you that Vista is a quantum leap forward in desktop security.

What Ballmer actually knows, but will avoid saying at any price, is that Vista is the least popular 'upgrade' to Windows ever, and that the only reason anybody has a copy is that their system manager insisted on standardising on it, or that the shop wouldn't supply XP without a fuss.

What he also knows, but won't admit, is that corporate predictions about Vista were a load of what Douglas Adams would have called foetid dingo's kidneys. Microsoft told us, with an apparently straight face, that home users would all be using it "because they will get it as default at work and will want the same great experience at home". Absolute nonsense: the PC market doesn't work like that and never has. It's the other way round – people buy a machine for home use, and get confused if the office machine is different and start asking for the office system to be changed. And when those people are the CEO, it happens eventually.

The reality is that less than half of corporate users have migrated to Vista, and that an awful lot of them are still kicking and screaming about being dragged off Windows 2000.

So, Steve, what makes you think people are going to take your word for the virtues of Windows 7? And what makes you think you can recover your credibility, having disillusioned a normally docile market into questioning Microsoft's judgement, having been forced to start retrofitting XP onto brand-new PCs and having seen the world move from watching Seattle to find out the future to watching Apple's Steve Jobs instead?

Ballmer mustn't answer that question. He knows, but must not admit, that he absolutely has to get Windows 7 accepted and loved. He knows that his position in the server market depends heavily on his ability to provide the dominant desktop management system. And he knows that his credibility is flimsy.

Currently, Windows is huge, taking massive amounts of machine power just to load and run. It is too complex to keep up to date and stable. It is lumbered with irrelevant and crazy concepts like the Registry and a pile of inherited obligations and requirements from old software that make security a nightmare.

And Ballmer, who is driving the work to fix all this, knows just what a challenge it is going to be. He has to get Windows 7 out onto a lot of desktops in the next 12 months, and it has to be impressive, better than OSX and more manageable than Ubuntu.

What he can tell you is that Microsoft is still by far the dominant computing platform. What he can't answer is the question: "How long can this last?" The simple answer is: "It can't." **PCW**

Boost your broadband

Get the best performance out of your broadband connection with help from Nigel Whitfield and Emil Larsen



When you're used to a high-speed internet connection, it's frustrating to find that it's not as fast as you think it should be, and if you rely on your connection for work, or keeping in touch using services such as Facebook, Voice over IP (VoIP) or instant messaging, it can be even more annoying.

All too often, when you try complaining to an internet service provider (ISP) you'll get poor-quality technical support or be fobbed off with a reminder that the service you've bought is only guaranteed to be 'up to' a certain speed, with no set rules about what's contractually acceptable below that theoretical level.

But you're not completely at the mercy of your ISP – there are steps you can take to speed up your broadband connection or at least track down the real cause of problems. In this article we're going to show exactly what you can do to get back online and back up to speed.

Diagnose the problem

In the days of dial-up modems, solving problems was pretty easy – since they relied on audible sounds down the line, if you could hear crackles when you made a voice call it was a pretty safe bet that they would cause problems with your downloads too. But if you have ADSL broadband, the modem or router talks to the telephone exchange using inaudible high frequencies that co-exist on the line with your voice signals. While this means you can use the phone line at the same time as broadband, it also means problems that cause a slow connection may not be immediately obvious.

Broadband is also a lot more complicated and there are lots of different things that can slow down your connection at different places in the link between you and the rest of the internet. There could be problems with your equipment, the phone wiring in your home, the local telephone exchange or at your ISP. And if you call out a phone engineer, because you think there's something wrong with the line, and the problem turns out to be with your equipment, or an extension you installed yourself, you could face a hefty call-out fee. So it pays to investigate where the problem lies first – and don't worry, it's nowhere near as complicated as you might think, and the solutions can be simple.

The basics

According to BT, the following three guidelines are still the most important to ensure a quality ADSL broadband service:

1. Get the latest firmware for your modem and/or router. Some older firmware revisions restrict the synchronisation rate between your home and local exchange.

'First, investigate the problems yourself. The solutions can be simple'

2. Ensure good-quality microfilters are fitted in every phone socket. BT says Sky TV boxes and fax machines are often forgotten.
3. Ensure a good standard of home wiring. Extension leads, in particular, can cause interference and restrict the abilities of your modem.

We'll look at all these areas in detail. But as with most technical problems, always check the basic stuff first. Check that all cables are securely attached. If your connection simply cuts out, disconnect the power cable from the modem (or set-top box for some cable services), and disconnect the power from the router if you use one (simply switching these devices off isn't enough). Leave each for 20 seconds, then restart the modem, wait a minute and restart the router and, lastly, restart the PC. With an ADSL connection you need to have a microfilter on every device that's plugged into the phone line – not just phones or fax machines: burglar alarms and data modems all need a microfilter. Microfilters are very cheap, but they can also fail and cause problems, so it's worth having a couple of spares, in case you suffer from performance issues.

BT reckons the difference in quality between different brands of microfilter doesn't have a great effect on speed. A microfilter either works, or it doesn't. If you experience a dramatic fall in speed or reliability over a short period of time, then it's likely that a microfilter has died. To find the broken one replace the microfilters



Illustration: Ian Naylor

Diagnosis checklist

This advice mainly concerns ADSL users – cable users should call Virgin Media customer support to verify any problems. Don't try repairing cable TV wiring yourself.

1 If you can't access web pages, including your ISP's own home page, check the basics – make sure the broadband modem or router is plugged in and switched on, you can hear a dial tone on the phone line, and your username and password for your ISP connection are correct.

2 Unplug everything else that's connected to the phone line so only the modem or router is plugged in. If the speed improves, try adding other devices one at a time to work out which is causing the problem. The device itself or the filter may be faulty – you can swap the filters round to find out.

3 With everything still unplugged, try plugging the modem or router directly into your telephone master socket. If you have a socket with a removable faceplate, unscrew it and plug it into the test socket behind it – this bypasses all your extension wiring.

If this solves the problem it's likely there is a fault with the telephone wiring in your house. If there's no test socket or your wiring is very old, you should get a professional opinion.

4 If nothing else is plugged into the phone line you can connect the router directly to the line without a filter – try using the cable from a telephone. If this fixes the problem the filter was faulty.

5 If you have lots of extension wiring, and step 3 improves the connection, consider fitting a BT I-plate – see the box on page 32 for more information – or disconnecting the bell wire of the master socket.

around the house, one at a time, and perform a speed test each time to measure performance. Replacements are available from BT for £6.84 each.

The quality of your phone wiring is important too if you use ADSL broadband. This does not apply to Virgin Media

'If you have very old wiring it might not be as resistant to interference'

customers, but you can still have Ethernet or USB cabling problems between the modem and your router; poor connections will introduce interference, so make sure your extensions are wired up properly using good-quality cable.

Some websites recommend removing the 'ring' or 'bell' wire from your system by disconnecting it at the master socket. This is because it's not needed by modern phones with electronic ringers and it can act a bit like an aerial, picking up interference from devices such as central heating relays, damaged microwave ovens, fluorescent lights or even flashing Christmas tree lights. Other wires in the cables don't pick up interference in the same way because they are used in pairs, which helps cancel out any signals picked up. See the boxout detailing the technical details on page 32, but also read about the legal issues surrounding changing BT wires below.

If you have very old phone wiring at home, the cabling might not be as resistant to interference as newer installations, especially if it was installed in the days before BT allowed people to add new sockets. This is due to the degradation of cables and fittings. Unfortunately, it's illegal to replace or tamper with this wiring yourself if BT installed it, and it could be a lot of work, so it's not worth doing unless everything else fails to improve your broadband speed. If you're in this situation, first, try plugging your broadband modem or router directly into the master socket rather than using extension sockets or cables. If it improves matters, you can then use a good-quality long Ethernet network cable or a wireless connection to link the router to your PC.



Overhead wiring can be affected by weather conditions and can suffer from corrosion

Optimising your router

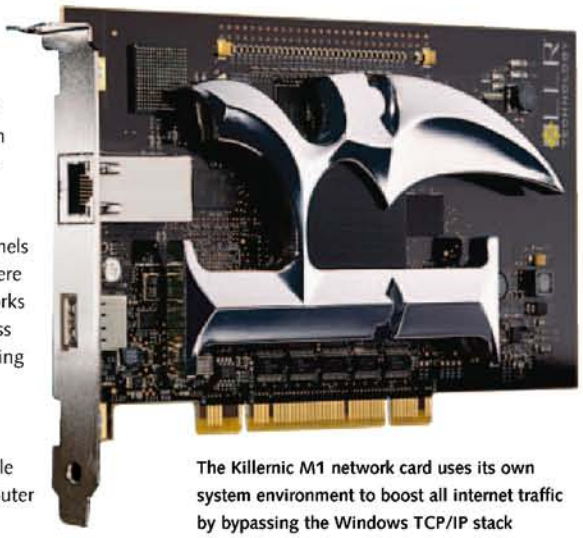
If you want to get the most out of your router, here are some tips. For wired and Homeplug (powerline) networks, check the network activity icon in the taskbar to see if a PC is connected at 10, 100 or 1,000Mbits/sec. If it's stuck at 10Mbits/sec, which happens with older network cards that can't auto-negotiate these settings correctly, go to the device manager, right click on the network card and select Properties. Select the Advanced tab and select the Link Speed/Duplex Mode property. If 100Mbits/sec/Full Duplex is available at this point, select it to improve performance – this is a potential bottleneck for high-speed broadband packages.

If you're using a Wifi router, inspect how many other wireless networks you can detect from inside your home. For the best detection, use a free utility such as Network Stumbler (**www.netstumbler.com**). Most 802.11g Wifi routers will let you choose between 11 different channels, but there are only three non-overlapping channels (sets of carrier frequencies), usually titled channels 1, 6 and 11 in a router's settings.

If another Wifi network is using your network's channel your performance may be affected. This is because a Wifi router will receive every data packet sent in its frequency range. So if your router's frequency overlaps with five others, your router will have to filter through five routers' signals (as well as its own), discarding the data that isn't marked for it and accepting the data that is. This is not a problem if the individual networks don't send much data, but if each Wifi network is busy the congestion could slow down your Wifi connection dramatically.

The newer 802.11n Wifi standard makes congestion even worse, since many routers implement dual-channel modes (so two non-overlapping 20MHz channels are used, leaving just one spare) at 2.4GHz compared to 802.11g networks, to improve speed.

There is a solution though: the 5GHz band. Both 802.11g and some early 802.11n routers work in the 2.4GHz range, while newer 802.11n routers have a 5GHz mode where 12 non-overlapping single channels and six non-overlapping dual-channels can co-exist. This means there can be up to 11 Wifi networks within range of your wireless network and without affecting your performance.



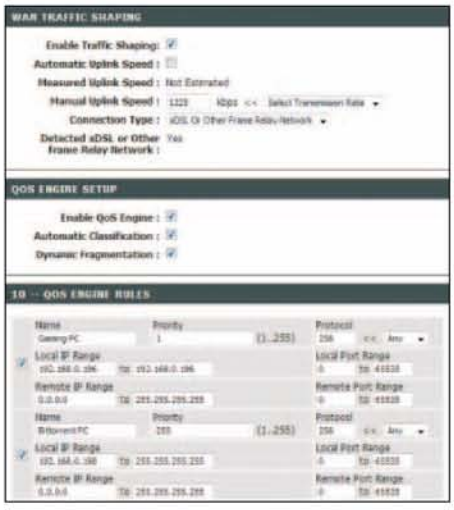
The Killernic M1 network card uses its own system environment to boost all internet traffic by bypassing the Windows TCP/IP stack

Quality of Service

If many people share a single broadband connection, a router with advanced Quality of Service (QoS) functions can be a godsend. QoS attaches a number to every packet of data and the lower the number, the quicker it will go. It means VoIP applications such as Skype and online games that require a low latency will be given priority over less important programs such as Bittorrent. Modern routers, such as D-link's DIR-855, have intelligent QoS engines that will assign priorities to your programs based on its best guess. The DIR-855 also lets you set which PCs are more important on the network, so they get the fastest internet access.

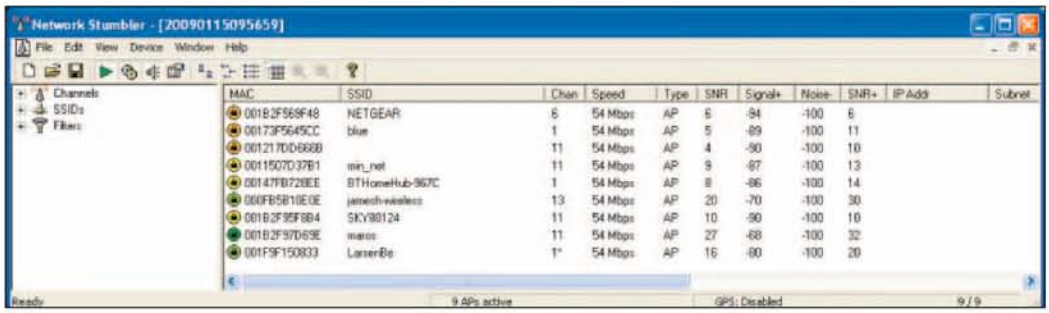
We tested the DIR-855 with QoS settings turned on and off over several hours' playing the online shooter game Counter Strike: Source on one PC and downloading a 1.5GB file over Bittorrent on another PC. With QoS turned on, there were fewer lag spikes and jitters within Counter Strike, although our ping (latency) only dropped by around 10ms. QoS should have a greater effect in houses with more PCs and on broadband lines with a very slow upload speed.

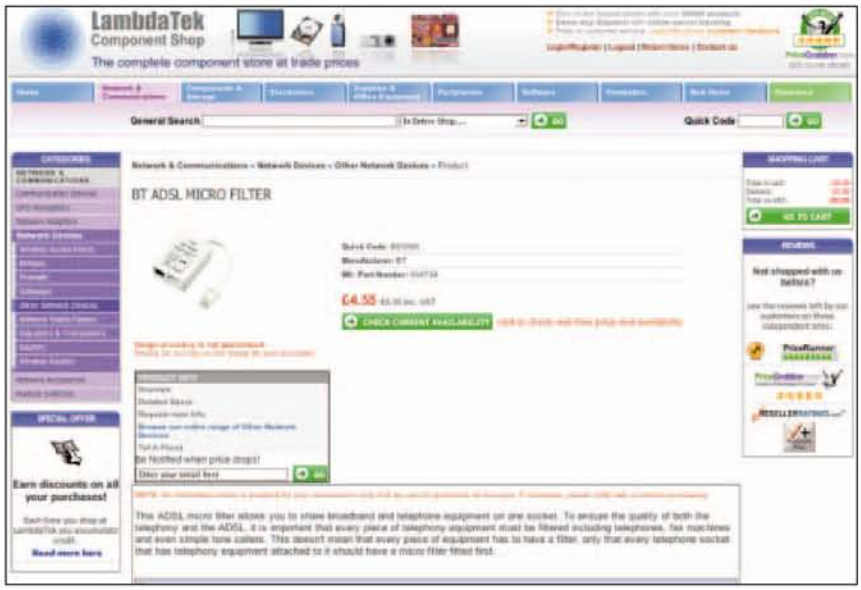
D-link's DIR-855 has extensive QoS settings to improve gaming and VoIP performance



Gaming latency can be speeded up by upgrading your network card. In September 2007 we reviewed the Killernic M1 network card, which has a 400MHz processor and its own Linux OS on board (**www.pcw.co.uk/2199131**). Its own system environment is used to boost all internet traffic by bypassing the Windows TCP/IP stack. It can handle Bittorrent downloads and, since some CPU power is offloaded onto the card itself, it can help improve performance and frame rates in online games. Its biggest feature is reducing latency; we only noticed an insubstantial 1ms drop over several hours, but other users have reported bigger improvements.

Typical Wifi pollution in an average London suburb





Microfilters are very cheap, but can fail and cause problems, so it's worth having a couple of spares

Our Diagnosis Checklist on page 29 gives tips on how to improve your wiring. If you've worked through that and still face problems, let's look at some of the other factors.

The missing link

The PC itself is one aspect that is often overlooked and, in particular, the way it connects to the broadband modem or router. Some early broadband services used modems that connected to the PC via USB. On older computers with fast broadband connections this won't perform well. It's much better to use a broadband (ADSL) router with a built-in modem and connect it to your PC using a network cable. Ask your ISP about compatible broadband routers – and then shop for the best price online.

Wireless connections aren't immune to problems either. Wifi can be affected by interference from other nearby wireless devices and the thickness of interior walls. So, if you have a very fast broadband link that seems slow on a PC linked wirelessly to the network, try connecting it to the router using an Ethernet cable instead.

Don't forget that the router itself can be faulty – it's really just a small computer and sometimes an update to the router's firmware, or even changing to a different brand, may improve matters. Check the website of your router's manufacturer for details. It's rare for the router to be the problem, but if you happen to have a second broadband router or modem it can be helpful to swap it and see if the problem still occurs. However, if your spare router is very old, and you have one of the latest high-speed broadband services, the router might not be compatible.

'You can tweak Registry settings to improve broadband performance'

It's also possible to tweak some of the Registry settings on your computer to improve broadband performance, and in rare cases, such as we found, you can sometimes get dramatic improvements this way. See the box on page 34 for more details.

Software sold as 'Broadband Accelerators' also uses this tweak, but since you can do it for free there's little point in paying for them. Products that aim to boost the speed of your internet connection fall into two categories: those that tweak settings you could adjust yourself free of charge and those that compress data so there's less of it to squeeze through your broadband connection; thus it arrives faster. The best-known example of this software is On Speed (**www.onspeed.com**), but compression tools won't make it any faster to download files that are already compressed, such as most forms of video and music.



On Speed compresses data so it arrives faster, but files that are already compressed are unaffected

Down the wire

What if you've checked your equipment, wiring and network, but your broadband performance is still much slower than the headline-grabbing speed advertised by your ISP? If you call up and say 'It's nowhere near the speed I pay for' it will point out the small print including the words 'up to'. Our sister magazine *Computeractive's* Crystal Clear Broadband campaign in 2008 prompted the regulator, Ofcom, to introduce a new code of practice for ISPs during 2008, which obliges them to provide clear information prior to closing the deal about the average speeds a ↘

Prepare to complain

If you suspect you're not getting the performance you're paying for, you need to gather evidence carefully and make sure it's accurate – it's much harder to reject a complaint that comes with supporting information.

Follow the step-by-step guidelines on page 33 to establish the speed at which your broadband line connects to the local telephone exchange. This shows what your line is capable of. If you have line problems then you may see the figures for this test vary, but on a good line they should be fairly constant after the first week (when the exchange automatically sets up the line).

Next, use one of the speed test sites we mentioned in the main article to record the performance when you download from the internet. If this is much slower than the line is capable of, the problem is more likely to be caused by congestion rather than the line itself.

You need to repeat this process and keep records. Ideally, you should run the test at different times of the day, which will help show if there are congestion problems at peak hours, and over several days. Stick to the same times each day so you can prove you have consistent problems, for example that the broadband speed is always slow in the evenings, but satisfactory during the daytime.

Make a clearly labelled table or spreadsheet of the results as part of your complaint about line speed. It will help your ISP work out where the problem lies.

Improve broadband performance with an I-plate

As we mentioned in the main feature, the legacy bell wire in your master socket can be a source of problems in older installations. BT's latest solution to this problem is the I-plate (£11.74 from **www.shop.bt.com**). The single bell wire (which isn't needed for modern phones) can unwittingly act as an aerial when it runs through any extension wiring in your home, picking up interference that can reduce the real-world speeds and reliability of your broadband. If you don't use any extension wires you won't see any improvements using the I-plate.

Good ADSL performance is related to the signal-to-noise ratio (SNR) margin and the number of errors the ADSL modem experiences – two things that can be improved by installing an I-plate, thus removing the interference over the bell wire.

Refer to the box on checking your ADSL line statistics with your router (page 30) and ensure your line is showing an SNR margin of 6dB or higher. Inspect the number of cyclical redundancy check (CRC) and header error control (HEC) errors you are experiencing to see if you might benefit. Frame error correction (FEC) statistics will also be listed, sometimes in the hundreds of thousands, but this can be ignored because it means any problematic data packets have been corrected.

HEC and CRC errors involve missing or corrupt data and are more problematic. Broadband providers won't usually inspect these types of errors, because different modems report the number of errors in different ways. But as a rough guide, hundreds of these errors every day are nothing to worry about, but tens of thousands can indicate serious problems with your home wiring or phone line.

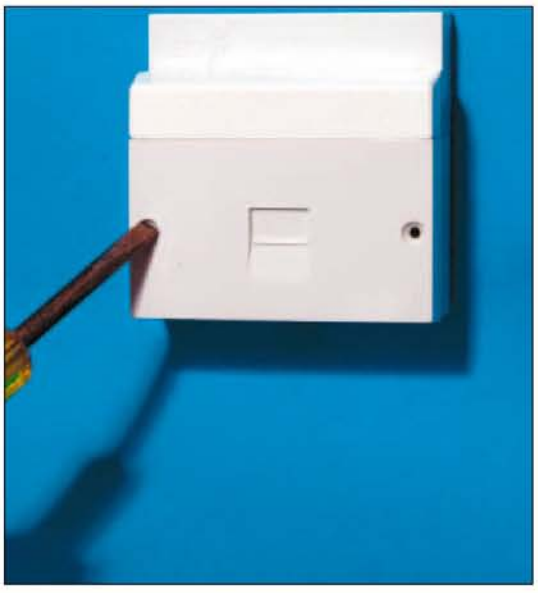
Link Information	
Uptime:	0 days, 2:06:42
DSL Type:	G.992.5 annex A
Bandwidth (Up/Down) [kbps/kbps]:	1,313 / 8,187
Data Transferred (Sent/Received) [kB/kB]:	0.00 / 0.00
Output Power (Up/Down) [dBm]:	12.0 / 18.0
Line Attenuation (Up/Down) [dB]:	5.5 / 13.5
SN Margin (Up/Down) [dB]:	7.0 / 11.5
Vendor ID (Local/Remote):	TMMB / BDCM
Loss of Framing (Local/Remote):	0 / 0
Loss of Signal (Local/Remote):	0 / 0
Loss of Power (Local/Remote):	0 / 0
Loss of Link (Remote):	0
Error Seconds (Local/Remote):	0 / 0
FEC Errors (Up/Down):	22 / 3,176
CRC Errors (Up/Down):	22 / 0
HEC Errors (Up/Down):	8,068 / 0

Line stats with a lot of HEC errors

Bell wire problems

Every home with a BT phone line has a master socket that connects to the phone lines on the street. BT says 70 per cent of UK homes have a split-face master socket (technically, an NTE5 socket) and anyone who's been visited by a BT engineer since 1980 is likely to have one.

If you have a modern NTE5 master socket with a BT logo (if there's no logo, chances are it's an illegal DIY replacement) and a horizontal split along the faceplate, you can see if your broadband performance will benefit from an I-plate. Remove its two screws and the faceplate (which has six wires attached to it) to find the test socket. The test socket is entirely isolated from your home extension wiring and is the direct link to your exchange. If you connect a microfilter and your ADSL modem to the test socket and experience higher broadband speeds, then your property will benefit from an I-plate.



Modern NTE5 master sockets can be fitted with an I-plate

If you don't have an NTE5 master socket, then messing around inside is illegal – don't be tempted to disconnect the bell wire yourself, as you could end up in legal hot water. You will need BT to upgrade it, which can cost £150 or more if it's not faulty or they're not upgrading it as part of other maintenance work.

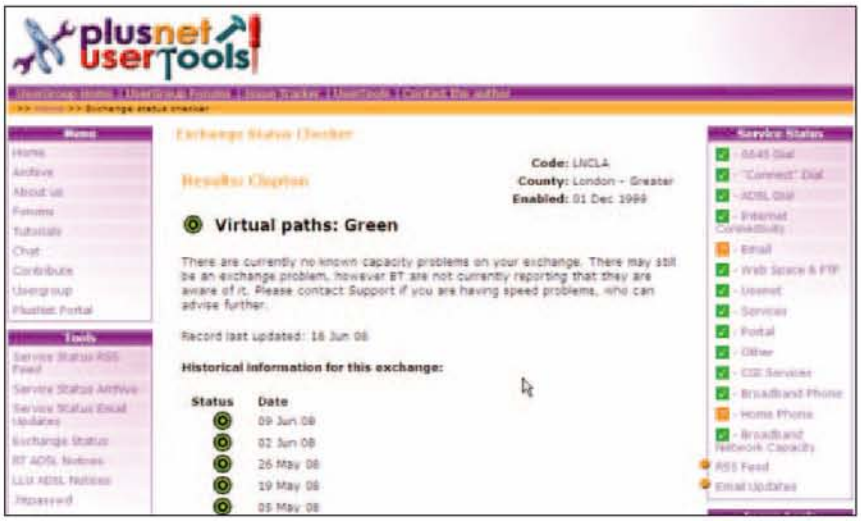
There is technically one way you could add an NTE5 master socket, by making the new master socket the first extension from your existing master socket. As BT may own any existing hard-wired extensions, the only 'safe' way is to connect the NTE5 socket via a phone jack into the front of the existing master socket. Then you could wire new extension cables into your new NTE5 socket after adding an I-plate.

Newer NTE5 master sockets with the BT Openreach logo on them are likely to already incorporate the technology used in the I-plate to suppress bell wire interference, so there's no point fiddling with them or buying an I-plate.

Once the I-plate has been installed (it's simply inserted behind the faceplate of an NTE5 master socket), it can take up to three days before you see any speed increase. This is because your broadband remote access server (BRAS) profile will be tweaked as your SNR margin increases. A BRAS profile is a broadband provider's way of restricting your ADSL connection to improve stability. If you don't experience any speed increase after three days then speak to your ISP.

Bypassing the bell wire in our informal tests improved our downstream SNR margin by 4.5dB, which should ensure a more stable connection. It didn't improve our speeds though, but we were already achieving 7Mbits/sec out of our 8Mbits/sec line. There is good evidence to suggest that if you receive substantially less than your headline contract speed then an I-plate can noticeably improve your broadband connection.

BT broadband customers can also order a home visit service called Broadband Accelerator, which BT says will usually result in a speed increase of 1Mbit/sec or more. First BT performs a speed test over the phone and if it thinks it can improve your speed by at least 0.5Mbits/sec an engineer will be sent out to your home to optimise your home computer, internal wiring and home networks. The service costs about £90 and if you don't get at least a 0.5Mbits/sec performance increase, you won't be charged. If you're having serious problems, it could be well worth the investment. *Emil Larsen*



Plusnet's user tools page reveals congestion problems at the local telephone exchange

consumer's telephone line can support (see **www.pcw.co.uk/2218419**). That's great for new customers, but if you're already tied to an unsatisfactory service there are still options.

The next link in the chain is the cable between your home and the telephone exchange. The maximum speed you'll receive depends on the length of the cable – and don't assume that because you're close to the exchange the wires are short. They often follow streets and won't always take the shortest route.

Overhead phone wires sometimes have loose connections that are aggravated by weather conditions or trees and in some parts of the country the wires are made of aluminium rather than copper and can suffer from corrosion and poor connections.

If your broadband problems are intermittent, rather than related to the time of day, then there could be a problem with your line. Unfortunately, if it's intermittent, you can pretty much guarantee that when you call the ISP everything will look fine when they run a remote line test. Fortunately, there are a couple of things that can help here. First, ask your internet provider to examine its logs to see whether or not your computer or broadband router is making lots of attempts to connect. If so, that's a symptom of a line problem. Second, some ISPs have access to a BT system called the Reactive Repair Tool. This records information such as the average speed of your connection, as well as highs and lows, and allows it to be accessed alongside the usual line-testing information.

'It's vital to gather evidence and check your own phone wiring'

If problems happen at a particular time of day, for example, this can make it much easier for an ISP to find out what's wrong. But it's not available if your ISP doesn't use the BT network. Don't worry though, it will still have some information and you can gather details of your own (see 'Prepare to complain' box on page 31), which can help show there's a problem.

You can get a rough idea of the capabilities of your line yourself. Many broadband routers record the speed of the connection between your home and the exchange together with two other important figures, the attenuation – how much of the signal is lost on the line – and the signal-to-noise ratio or noise margin, which measures how much breathing space the broadband signal has on the line. If it's too low the speed will drop to keep the service reliable. See how to estimate the capabilities of your line below

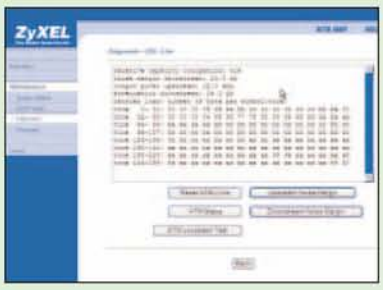
If your line consistently gives a low figure it's a fairly good sign that you have a poor contention ratio. If it gives a high figure, but you don't see a similar speed from downloads, the problem might be your internet provider itself.

If your line is connecting to the exchange – called 'syncing' – at different speeds it's not necessarily a problem, as long as it settles down. With ADSL services advertised as 'up to' a certain speed, the telephone exchange analyses the performance of your line and assigns a 'profile' to it that determines the maximum speed. It can take up to five days from when you first connect for this profile to be allocated, so it's usual to see the sync speed fluctuate at first. If it carries on changing, however, it could indicate that there's a problem with the line.

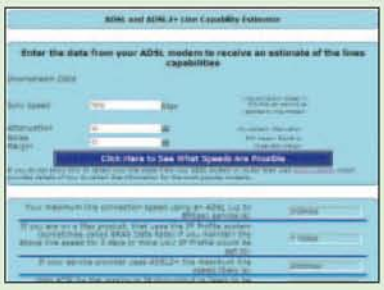
Use your router to check your line's capabilities



1 Head to **www.kitz.co.uk/adsl/frogstats.htm** and select your router from the dropdown menu at the top of the page. This will explain how to obtain the information you need from the router via your web browser.



2 Connect to your router according to the instructions from the previous screen, and follow the instructions to find out the line speed and information about the 'downstream' connection. You should end up with three numbers to note down.



3 Visit **www.snipurl.com/2vfg7** and enter the three values in the boxes at the top of the page, then click the large button beneath them. You'll be told the maximum possible speed that your line is able to support.

Tweak your Registry to speed up your broadband

If your physical infrastructure is in good shape, or you're using a fast cable broadband service, there's little else you can do in the way of repairing to improve your broadband performance. But ensuring that Windows is set up optimally for good network performance is one way of eking out a bit more speed and reliability, especially on high-speed broadband packages.

Virgin Media, the UK's only consumer cable broadband provider, recommends using a program called TCP Optimizer to improve performance of its 20Mbits/sec services, but the software can also be used by ADSL customers.

TCP Optimizer (**www.snipurl.com/a3mdy**) is a small utility that edits the TCP and IP parameters in the Windows Registry. The most important tweak it makes is to the TCP Receive Window size. The TCP Receive Window defines the amount of data a computer can accept from a server without acknowledging the server. If the website has not received acknowledgement for a packet, it will stop and wait. If it waits too long, it will even re-transmit this data. The standard TCP Receive Window is quite small, which means the server stops and waits for acknowledgements more often. TCP Optimizer increases the TCP Receive Window value which may speed up larger downloads considerably.

It makes improvements to Internet Explorer (IE) too. By default, IE will only download two files at a time from a web page, but TCP Optimizer will increase that to 10, which has a profound effect on how quickly modern websites with dozens of graphics and scripts load.

We tested TCP Optimizer on three Windows XP PCs and the improvements varied from none to very impressive.

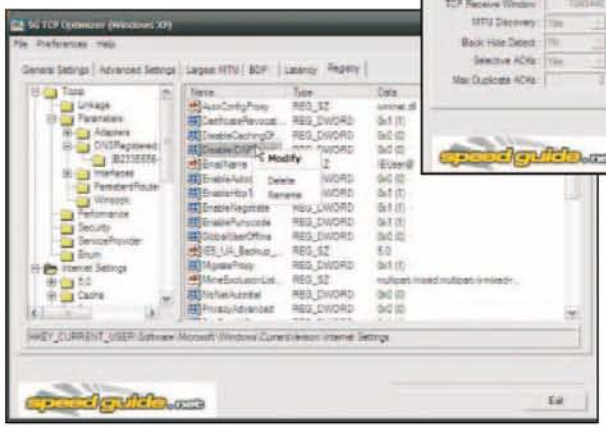
Using speed testing services we noticed TCP Optimizer didn't improve speeds or latency, but speed tests only measure throughput for a small amount of data, while TCP Optimizer is designed to have an effect for bigger downloads. We tried downloading a 166MB file with and without TCP Optimizer's improvements. When TCP Optimizer was used, downloading a file at around 430Kbytes/sec, two laptops experienced no change.



Vista's TCP Receive auto-tuning can be tweaked using the command prompt

One laptop, however, experienced download speeds averaging 121Kbytes/sec without TCP Optimizer and 422Kbytes/sec with TCP Optimizer. We thought this must have been a mistake, so we restored our original Registry and performed the speed test again, only to find the speed was indeed 121Kbytes/sec. We repeated both readings two more times, but the results stayed the same: TCP Optimizer tripled our HTTP download speeds on one laptop.





Above: The TCP Optimizer offers a quick auto fix for TCP/IP parameters...

...or you can access advanced Registry entries directly (left)

Then we tried downloading a 200MB file over Bittorrent using a torrent file that had over 400 seeds and just 50 peers, which should saturate our connection. Using two results for an average, speeds increased from 695Kbytes/sec to 779Kbytes/sec on one laptop, with no gain on the other two.

We suspect that TCP Optimizer won't help all PCs, but certain PCs (and, more specifically, network cards) and web applications will benefit enormously.

Virgin Media doesn't recommend using TCP Optimizer on Vista PCs and there's good reason for this. Vista's TCP/IP stack has had a huge overhaul since XP, which makes some of the TCP Optimization tweaks redundant.

For a start, Vista has TCP auto-tuning which means the TCP Receive Window is dynamically adjusted to suit the network conditions. To see what your settings are in Vista, open the command prompt as an administrator and type **netsh interface tcp show global**. You can change the auto-tuning level to normal, for example, by typing **netsh interface tcp set global autotuninglevel=normal**.

There are several TCP Receive Window values available. Microsoft recommends **Disabled** if web browsing and email are sluggish or freeze altogether (some routers and network cards can't handle the way Vista resizes the TCP Receive Window, so disabling it may clear up connectivity problems). **Highlyrestricted** is the default and allows the TCP Receive Window to grow a tiny bit. **Restricted** is for limited variable TCP Receive Window sizes. **Normal** will increase the TCP Receive Window to improve the performance of larger downloads and **Experimental** can accommodate extreme scenarios, but can also slow your speed.

When you think you have a problem with your line, the only solution is to report it to your ISP, which will forward the matter to BT. Even if your broadband doesn't use the BT network, BT is still responsible for the cable from your home to the exchange (except for Virgin Media, or in Hull, where the cables are owned by Kingston Communications). But it's vital to gather as much evidence as possible and make sure you've checked your own phone wiring.

ISP woes

What happens if your line syncs with the exchange at a high speed and you still get slow downloads? Is it automatically the fault of your ISP? Well, no, not necessarily. There's still a possibility that there could be local congestion problems at the telephone exchange, which would affect all the users in the area. Fortunately, there's a handy tool on the Plusnet website that tells you about

'Use well-known UK sites to measure the speed of your broadband'

such problems and gives information on when a resolution is expected. Go to **http://usertools.plus.net/exchanges** and type in your phone number.

If there are no known problems with the exchange, it's more likely that the problem lies with your ISP, so now it's time to test your download speed.



BT's line speed tester works with broadband providers that use the BT IPstream network

There are lots of sites on the internet designed to help you check the download speed of your broadband connection – but it's best to use well-known ones, such as those at **www.speedguide.net** or **www.thinkbroadband.com**, that can use servers based in the UK, and to run the tests several times. If you use overseas sites, the results won't be as accurate. Remember to turn off any other computer on your home network that might be using the broadband link before running the test and quit all programs except your web browser – if something is being downloaded, even an email or virus scanner update, you'll get inaccurate results. Do not turn off your firewall.



Many sites can check the speed of your broadband and identify a problem with your ISP

There's also a BT line speed tester that you can access if your broadband provider uses the BT IPstream network – it won't work with ISPs that rent space in phone exchanges from BT for their own equipment (these services are sometimes referred to as unbundled from the local loop – the network of wires from exchanges to households, or Local Loop Unbundling (LLU). To use the tester you need to change the username and password in your modem or router, so make a careful note of the correct settings, either with pen and paper or by taking screengrabs. You'll find the details of how to use the BT test at **www.kitz.co.uk/adsl/bttest.htm**. This tester has the advantage of taking your ISP out of the equation by establishing a direct link from your PC to the speed tester.

If you receive much better results from the BT test site than when using your own ISP, then the problem almost certainly lies with it – and you can start building up the information you need to complain about the service you're receiving. Follow the tips in 'Prepare to complain' on page 31 and read the online article at **www.pcw.co.uk/2222485** to find out where you stand with the new Ofcom code for ISPs. **PCW**

Vista's second coming



Vista's second service pack has quietly sneaked into beta testing, but does it fix much? Paul Monckton digs deeper

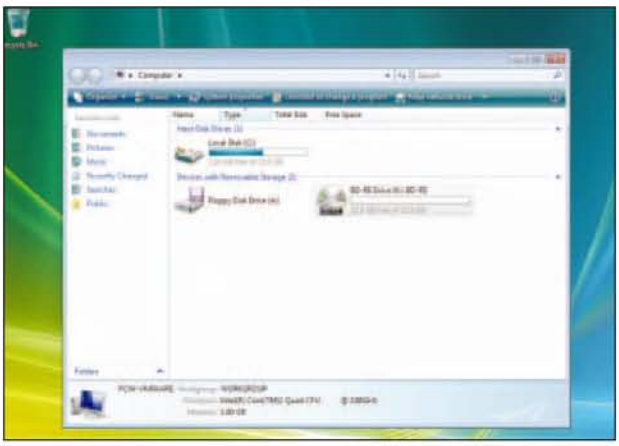
With all the fuss about Windows 7, it's easy to forget that Microsoft has a current operating system to maintain. Since its release the much-maligned Vista platform has seen many updates and bug fixes, both major and minor, which have cleared up many of the issues responsible for the mixed reception it received at its debut.

The most significant of these, Service Pack 1 (SP1), incorporated significant improvements in performance and reliability which some would say brought the operating system up to the level of quality it should have attained prior to its general release. SP1 also included fixes for issues that affected large numbers of users, for example poor network file transfer performance.

As the time draws near for the release of Service Pack 2 (SP2), Microsoft has made a beta version of the patch publicly available for testing. You can try out the software for yourself by following the instructions here.

Tempting as it may be to some of us to immediately download the very latest code available, SP2 is unlikely to provide many new toys to play with. If you crave the thrills and spills of a daring new desktop experience, get thee hence to the Windows 7 preview. This beta is for people who want to ensure their applications and infrastructure will work properly in time for the release of the service pack.

However, within the relatively minor selection of new features there are some interesting additions and improvements.



SP2 allows drag and drop from Blu-ray drives

What's new

The content and scope of a Windows service pack varies greatly from service pack to service pack. Sometimes major new features are added, for example the Security Center introduced in Windows XP Service Pack 2, and sometimes deeper changes are made: Vista's SP1 updated the Windows kernel code to bring it in line with that in Windows Server 2008.

Microsoft uses these service packs to deliver whatever changes it deems necessary. All you can be sure of is that you'll get a raft of bug fixes, which will be incorporated into retail copies of Windows so you don't have to go through the painful process of downloading hundreds of patches every time you do a re-install. If you've been diligent in your regular visits to the Windows Update service, or allowed Windows to install updates automatically, you may already have a large number of these patches installed.

'Service Pack 2 is all about improving the running of the operating system'

Over 400 previously available updates have been incorporated into SP2 – you can view the full list at **http://technet.microsoft.com/en-us/library/dd335033.aspx**. One of the main purposes of a service pack is to provide a one-step process for bringing a PC up to date with these updates. SP2 also provides further compatibility improvements targeted at specific applications. For example, Zone Alarm and Spysweeper now work correctly when integrated with Pop3 email accounts.

For end users, there's almost nothing new to see in Vista SP2. It's all about improving the running of the operating system, with most new features restricted to hidden, under-the-hood updates aimed at developers and administrators.

A great deal of the content of SP2 is aimed primarily at Windows Server 2008 – this now runs in parallel with Vista from a service pack point of view. The two operating systems share the same kernel and, thanks to Microsoft's single serviceability model, can share service packs and updates. This service pack will therefore install on both operating systems, although we'll be concentrating here on those changes that affect Vista.

Remember, the service pack is still in beta, so there may yet be new features added that aren't covered here.

The details

Below is a list of the main specific changes, fixes and improvements in SP2:

- Via's 64-bit CPU is now supported by the 64-bit edition of Windows Vista.
- Improved audio and video performance for streaming HD content.
- Enhanced hardware support for DirectX.

The operating system has also been patched to enable better Wifi connection performance when resuming from sleep mode.

Windows Search has been updated to version 4.0 and provides better indexing and more relevant search results. This Windows service helps you find and preview information on your PC whether it's stored in documents, emails, photos, music files or many other types of data.

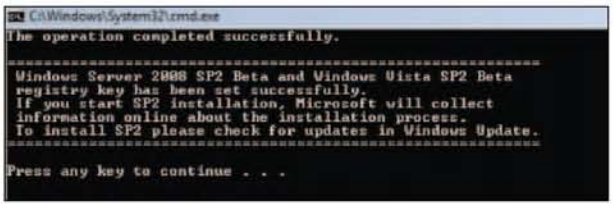
How to get Vista SP2

Microsoft has made the Service Pack 2 Beta available for all to try via its Customer Preview Program (CPP). As with all beta software, we would advise against installing the service pack on any mission-critical PC. Pre-release software is likely to contain bugs and if these cause damage to your PC, software or data, you will have no recourse to Microsoft – so back up everything first.

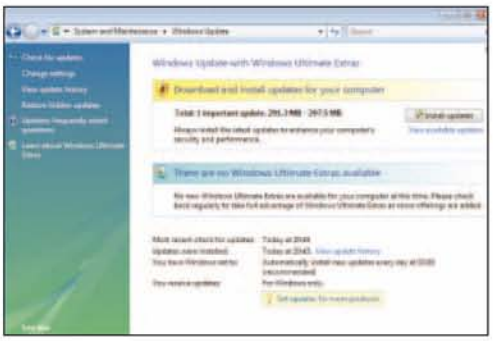
You can get SP2 through Windows Update, after a few Registry tweaks. However, Microsoft's 'Windows Server 2008 Service Pack 2 Beta and Windows Vista Service Pack 2 Beta – Windows Update Experience Kit' download will make the necessary changes and enable you to receive the service pack via the usual Windows Update procedure. You will need to rename the file to give it a .cmd extension and run the command with administrator privileges.

This is the preferred method of installation for standalone systems as the volume of data you'll need to download is kept to a minimum. When you install the service pack via Windows Update, Microsoft says you'll have to download approximately 41MB of data for 32-bit Windows or 60MB for the 64-bit version. During our evaluation we were offered a payload of over 290MB, but this will depend on your configuration and update history.

A standalone package is also available for offline installation, however the 32-bit version is 302MB and this increases to 508MB for 64-bit systems. This is simpler than the Windows Update method and lets you install SP2 multiple times without downloading it again.



You can get Service Pack 2 beta via Windows Update after you've run this small Registry patch, but Microsoft has made it easier via a download



The size of SP2 can vary from 40MB up to nearly 300MB

Prerequisites

Before you can install SP2, you must have first installed SP1. Another update, 'Servicing Stack Update (KB955430)' must be installed before the new service pack will be offered to you on Windows Update. This update improves the reliability of service pack installations and removals and should avoid uninstallation problems.

Caveats

If you want to try out the SP2 beta, you'll have to uninstall the beta before installing the final version – you won't be able to upgrade from the beta to the final code. Also do not use Microsoft's Comcln.exe utility to clean up files replaced by the service pack as this will make installation of the beta code permanent.

There are a small number of known issues with particular applications working on SP2, notably some older versions of AVG Anti-Virus Free and PC Tools Spyware Doctor. These are detailed in Microsoft's release notes document, along with workarounds for some of the problems, so check this short document before proceeding.

The 'Windows Vista Feature Pack for Wireless' has been integrated into the service pack. Previously available for Vista SP1 and above, but only from OEMs, this package is now available to all and adds support for Bluetooth version 2.1.

Vista is able to write files directly to recordable CD and DVD media from Windows Explorer. SP2 extends this functionality to Blu-ray drives, allowing you to store files on writeable and rewriteable discs with a simple drag and drop operation.

Improved power management policies in SP2 are claimed to deliver up to 10 per cent greater efficiency than SP1 in some situations. Microsoft's documentation says this works on both Vista desktop and Server 2008 platforms, but no mention is made of any improvements on notebooks.

Windows Connect Now, a technology for simplifying the configuration of wireless networks, has also been included in SP2.

Is it worth installing?

The good news for those who want to try out SP2 is that improved installation procedures make SP2 easier and safer to install than previous service packs. Not only is there a single installer for both Vista and Server 2008, but incompatible drivers on your PC can now be detected before installation, blocking the upgrade from taking place. You can also be forewarned of any likely loss of functionality, rather than discovering after the lengthy installation process that your system no longer functions in the way you want it to.

Of interest to some, but hardly worthy of a service pack-level update, is that the RSS feeds sidebar gadget has been made faster and more responsive.

Outside of a testing environment, there's little immediate benefit to trying the SP2 beta. However, if you have a Blu-ray writer or are battling against some of the compatibility issues mentioned above you may gain some benefit from installing it now and seeing whether they're successfully fixed. Of course, as a *PCW* reader you're probably just plain curious – but if friends and family start pestering you about it, we'd recommend you tell them to stick with SP1 for now (which is definitely a recommended update) and apply all available updates as they appear until the final release of SP2, which should appear before the middle of 2009. **PCW**

Useful links

Windows Vista Service Pack 2 Release Notes
http://technet.microsoft.com/en-us/library/dd335042.aspx
Microsoft Technet article on the Service Pack 2 Customer Preview Program
http://technet.microsoft.com/windows/dd262148
Windows Update Experience Kit
www.microsoft.com/downloads/details.aspx?FamilyId=18045534-BF27-4953-B907-764C4682714C&displaylang=en
Microsoft Technet document on Notable changes in Windows Vista SP2 Beta
http://technet.microsoft.com/en-us/library/dd335036.aspx

Web wars

Not since the heady days of the late 1990s has there been such fierce competition between web browsers. Robin Nixon reviews their history and dissects the current offerings



As far as browser innovation went the first half of this decade was extremely dull. Once Microsoft had won the original browser war, totally eclipsing Netscape, it settled for a period of entrenchment, refusing to make its browser comply with web standards because with a 95 per cent market share, it argued, Internet Explorer was the de facto standard.

For years it seemed that no other browser could gain even a foothold against the lumbering giant, until an offshoot of the Mozilla project (a foundation originally created by Netscape) released a new browser in 2004, which grew into the program we now know as Firefox. Not only that, but just a few months prior to this Apple had released the Safari browser with Mac OSX 10.3. Finally it looked as if the tide might be turning and Microsoft could be in for some serious competition. But the fightback has been slow; taking four years for Firefox to gain 20 per cent of the market, and Safari and Google's new Chrome browser to take another 10 per cent between them. Still this means that by the end of 2008 about a third of Microsoft's monopoly had been eroded.

Not that we're bashing Microsoft here. Rather we're hailing a small victory for standards compliance and innovation as the internet once again appears to be at a turning point, now that there are five main web browsers to choose from: Internet Explorer, Mozilla Firefox, Opera, Apple Safari and Google Chrome, with all four of the latter browsers gaining ground against the former.

But what does this mean for users? Will the web look different depending on which browser we choose? Will we miss some good content if we make the wrong choice? And what does the future hold for web innovation and new browser technologies?

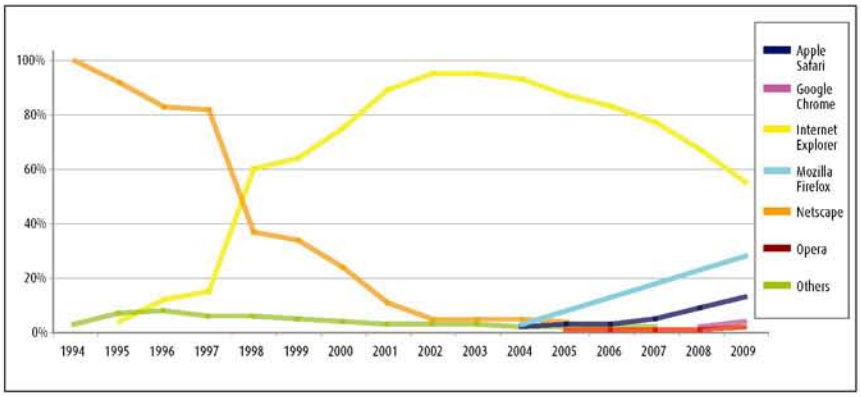
To answer these questions it's necessary to understand how we got to the current situation, by looking at the development of each of the main contenders.

Netscape Navigator

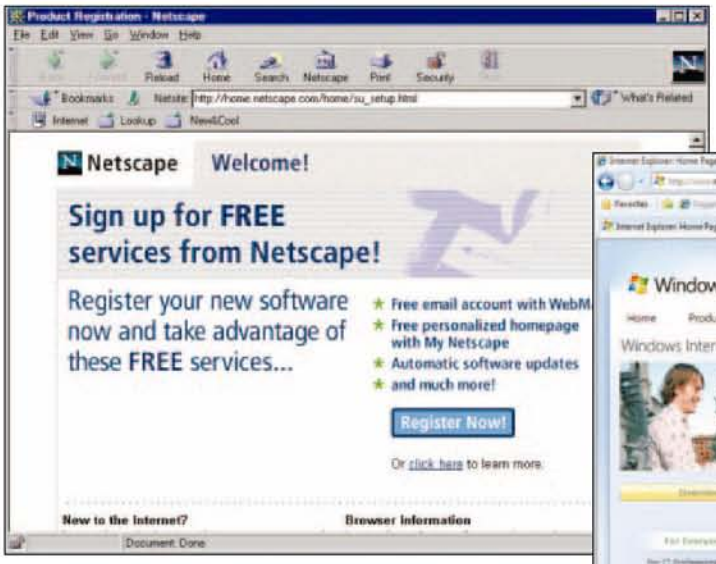
No official download since March 2008
Share of browser market: 0%

Marc Andreessen first developed the Mosaic browser in 1992 at the National Center for Supercomputing Applications (NCSA). He later founded Mosaic Communications, which became Netscape Communications and led to the release of Netscape Navigator in 1994. Although users were reminded that they had to register for personal or business use, this was never enforced other than by nag screens. Even so, Netscape became a hugely profitable organisation.

So it's a shame that the first great browser, which in its prime accounted for almost 100 per cent of all browser users, now has less then half a per cent remaining. The reason for this, of course, is that it lost a long and hard-fought war against Microsoft's Internet Explorer. From the outset it was a battle that Netscape couldn't win. One way or another, once Microsoft saw the revenue a web



Percentage market share for browsers from 1994 to 2008, and predictions for 2009 based on current trends (compiled from multiple sources)





Left: Netscape Navigator 4.08 is now all but defunct

Below: Microsoft's Internet Explorer 8 is purported to include new Web 2.0-friendly features

browser could generate, it wanted its own, and when it couldn't buy Netscape it bought the next best thing, Spyglass Mosaic, rebranded it and pitched it head to head against Netscape.

Microsoft was determined to win at all costs and it made Internet Explorer not only totally free for everyone to use, but it embedded the browser within Windows itself (something that led to major anti-trust cases around the world). Netscape couldn't withstand the onslaught and, over three years, it went from holding over 80 per cent of the market to having less than 10, while IE replaced it.

Microsoft Internet Explorer

http://microsoft.com/windows/products/winfamily/ie

Share of browser market: 67%

The Internet Explorer (IE) browser began development in 1994 when Microsoft licensed the source code for Spyglass Mosaic, which was actually Microsoft's second choice – it had initially wanted to license the Netscape Navigator browser itself. Microsoft managed to secure the rights to Mosaic by offering Spyglass a basic quarterly fee plus a percentage of all IE revenue.

But it had other plans and began offering IE free online and bundling it with Windows 95, thus avoiding paying any royalties and only stumping up $2m in fees. So, in 1997, Spyglass threatened Microsoft with a contractual audit, which it settled for $8m. To remove any further obligations to Spyglass for the release of IE7 in 2006, Microsoft checked every line of software to ensure no Mosaic code remained.

Between the years 2001 and 2005 the only browser most people used was IE6. It wasn't fully standards-compliant but it was a standard of its own by default, so many of the most visited websites of today were developed for it. However, the release of Mozilla Firefox woke Microsoft from its apparent slumber, and IE7 heralded many belated steps towards standards compliance. And the forthcoming IE8 will feature even greater compatibility with web standards, such as CCS 2.1 and HTML 5, as well as improved Ajax support. Even so, IE6 is still the browser of choice for a third of all Internet Explorer users (or just under a quarter of all web surfers).

'Microsoft was determined to win – Netscape couldn't withstand the onslaught'

Mozilla Firefox

http://firefox.com

Share of browser market: 22%

In 2002 a couple of Mozilla project programmers decided to create a standalone browser to combat what they saw as software bloat in the Mozilla Application Suite. Pretty soon it became evident that they had achieved a sleek and fast program and so the Mozilla organisation changed its focus towards this new browser (and an email client which would become Thunderbird).

In late 2004, after a few name changes where the monikers Phoenix and Firebird were rejected due to complaints from other

Mac OSX and Linux

Over the years Macintosh computers have favoured three main browsers. Originally there was Netscape Navigator, then in 1997 that was replaced by Microsoft Internet Explorer, and finally Apple developed its own browser, Safari, released in 2003.

Since then Apple has ported Safari to Windows XP, Vista and the iPhone but so far hasn't written a version for Linux. However, Linux users can run Safari using Wine and they have also had a version of the Konqueror browser since 2000, which uses the same basic KHTML rendering engine as Safari's Webkit.

Both Linux and Mac users can also run the Firefox or Opera browsers, each of which remains in full development across the Linux, Mac and Windows platforms. A number of other browsers are also available for Mac OS and Linux.



As well as Safari, Opera and Firefox (shown here) are available for the Mac

organisations with prior usage, the brand name Firefox was settled on and version 1.0 was released. From the word go Firefox featured tabbed browsing and closely adhered to the World Wide Web Consortium (**http://w3.org**) specifications, many of which Microsoft had been ignoring with IE.

At first this caused problems for web developers, who had to write HTML code the right way for Firefox and then tweak it to run on IE (or the other way around). But as downloads of Firefox rapidly grew into the millions, Microsoft started to sit up and take notice and, with the forthcoming release of Internet Explorer 8, it is much more respectful of the official standards.

Opera

http://opera.com

Share of browser market: 1%

The Opera browser has been in development since 1994 when it grew out of a research project at Norway's telecom company, Telenor. Its first public release was version 2, which came out in 1996. It is currently up to version 9.6. It was the first contender for the title of the 'alternative browser' in the days when Netscape reigned supreme and Internet Explorer was only just snapping at its heels.

Until 2000 Opera was trialware, as Netscape Navigator had been, but version 5.0 became advertising-sponsored and the requirement to pay was dropped. However, Opera didn't really appear on the internet's radar until 2005 when a deal was reached with Google to make it the browser's default search engine, and so became totally free and without advertising.

In the meantime, though, Opera has made significant inroads on mobile devices, and editions are available for Symbian, Windows Mobile and Java ME. To date it's estimated that more than 40 million devices have shipped with Opera pre-installed, and it's also the only commercial web browser for the Nintendo DS and Wii game systems.



Apple's Safari is available for both Mac and Windows PCs

Apple Safari

http://apple.com/safari

Share of browser market: 8%

Until 1997 Apple Macs had shipped with the Netscape Navigator browser but then Steve Jobs and Bill Gates announced a partnership that meant, among other things, Apple would make Internet Explorer the default browser for Mac OS.

However, after the release of IE5 for the Mac in 2000, most of the development team were moved onto other projects and were asked to only develop IE for Mac "in their spare time". Consequently no new versions were developed for the Mac so Apple decided it had to step in to fill the gap.

In early 2003 Jobs announced that Apple had developed its own rendering engine called Webkit, which it used to release version 1.0 of Safari later that year. Webkit is based on the KHTML engine in the Konqueror browser for Linux, both of which were released as open-source software.

In 2005 Apple announced that Safari had become the first browser to successfully pass the Web Standards Project Acid 2 compliancy test and, since then, Safari has also found its way to Windows PCs and is the default browser for the iPhone.

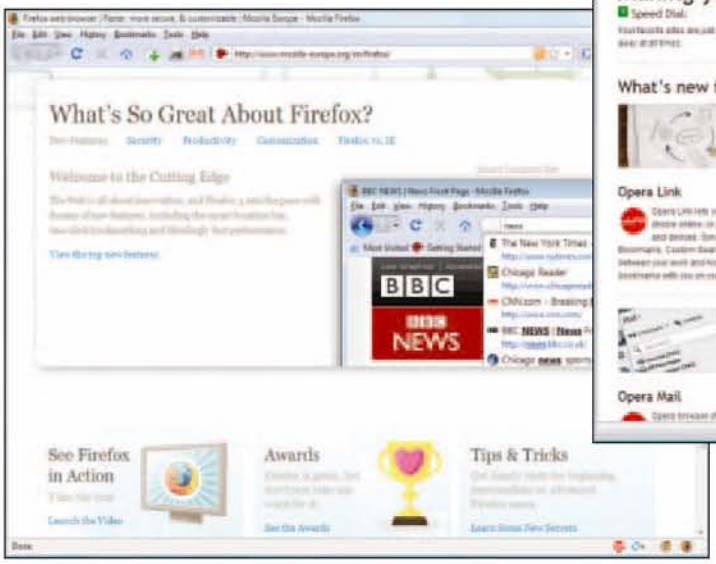
Google Chrome

http://google.com/chrome

Share of browser market: 2%

Rumours about Google developing its own browser had been rife for many years until





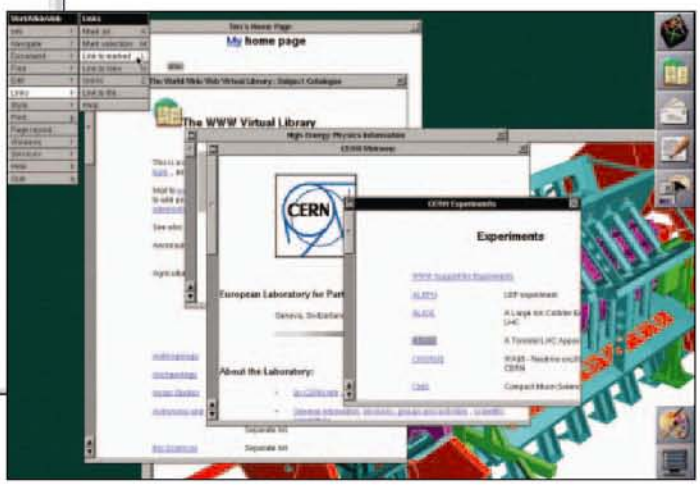
Above: Opera is becoming popular for mobile phones and other specialised platforms

Left: Mozilla Firefox is IE's biggest rival



Left: Google Chrome is the latest entrant into the browser market

Below: Tim Berners-Lee's Worldwideweb Browser from 1990



September 2008, when they finally came true and Google released the first public beta of its Chrome browser. Using the power of the Google search engine's front page, the browser quickly managed to leap-frog Opera in popularity as millions of people downloaded it.

The Chrome browser is built upon Apple's Webkit rendering engine but uses Google's own Javascript virtual machine which, on its release, was the fastest available (since then Firefox claims to have made up the missing ground). Like the other main browsers, Chrome offers tabbed browsing but it does so in such a way that each tab is programmatically isolated ('sandboxed') from the others, so that if one tab crashes the others will remain running. Another innovation is the combining of the address and search bars into an intelligent single bar.

It has been suggested that take-up of Chrome has not been as rapid as it could have been because third-party extensions (standard on most other browsers) are not yet available for it.

Browsing on the move

The smartphone market is dominated by the Symbian operating system with about 40 per cent of users, swiftly followed by the iPhone with 33 per cent, RIM and Windows on 10 per cent each, and all others sharing about seven per cent between them.

With Google's backing, Android is sure to take off quickly and join the iPhone in eating away at Symbian's lead. So it seems the two big browsers in the marketplace are destined to be Apple's Safari and Google's Android, with Opera Mini falling into third place – possibly leaving Windows trailing with the also-rans.



The T-Mobile G1 with Google Android, now available in the UK

The smartphone market is interesting because it is undergoing tremendous growth and there is a strong symbiosis between the operating system and web browser. So much so that it's becoming harder to tell where one ends and the other begins – hackers recently managed to get Android to run on an Asus Eee netbook by discovering pre-existing hooks in the OS for running it on non-phone mobile devices.

With the rapid expansion of 'cloud computing', where applications and data no longer reside on a PC but run on computers 'somewhere' on the internet (see our group test on page 91), quite soon all we will need to achieve the computing power of a desktop is a netbook with a browser – and you can be sure that all the browser developers are aware of this fact. Of course, Microsoft knows it too, which is why it's so vehemently touting the ability of Windows 7 to run on a basic netbook.

So the mobile phone market could be the next battle front in the latest browser war as it turns into an even fiercer OS war.

Other browsers

There are other notable existing and defunct browsers such as Worldwideweb, the very first web browser written by Tim Berners-Lee in 1990, and the first popular browser called Viola (released in 1991). There is also Konqueror (released in 2000 and bundled with many Linux distributions), without which Safari would have to have been based on a different rendering engine, as well as a number of other specialised browsers such as Lynx (**http://lynx.isc.org**), Seamonkey (**www.seamonkey-project.org**) and Flock (**http://flock.com**). Sadly, though, even at their height these browsers never managed to amass even 10 per cent of web users between them.

Which browser to choose?

So the question is, with such a wide choice of good browsers available, does it make a difference which one you choose? And if so, which browser is best?

There are a few ways of answering these questions. The first is to understand that now that the browser war is back on, and there is competition in the market, each browser developer is trying to outdo the others in terms of security, usability and innovative features. This means that browser users can reap the benefits of competition, whichever browser they settle on.

That said, each browser definitely has its own plus and minus points, usually related to its development history. For example, Internet Explorer will only start to catch up with the other browsers in terms of web standards compliance when it finally releases IE8 from beta test.

Likewise Chrome, even though version 1 is out of beta now, still lacks some basic functionality you would expect, such as the ability to use third-party extensions. Which is a shame because otherwise it's an extremely

fast and easy-to-use program. And if you're a Linux user you can forget about Safari unless you are prepared to run it using the Wine translation layer.

All the browsers are also producing better and better security features such as phishing and malware alerts, virus checking downloads and more, so your choice is probably going to come down to just two main things: speed and compatibility. So let's look at each of these.

Speed

After compiling data from several websites, and from our own experience, it seems that Webkit-based engines perform best overall for Javascript handling, in other words the Safari and Chrome browsers lead the field with Opera and Firefox just behind and Internet Explorer trailing. But the Firefox 3.1 beta is now returning some excellent speeds, and IE8 is also improving in this respect.

This means that once Firefox 3.1 and IE8 are released, for most purposes you will probably be able to use any of the five main browsers and be pleased with their speed. But for the time being when fast execution is imperative, Chrome, Safari and Firefox have the edge, although that could change over the next six months. You should remember, of course, that even the fastest browser can be brought to a halt by poorly coded websites or congested servers and connections.

'Your choice of browser is going to come down to speed and compatibility'

Compatibility

To compare the five main browsers we used Chrome 1.0.1, Safari 3.2.1, Opera 9.63 and the latest betas of the forthcoming Firefox and Internet Explorer browsers. The good news is that on a Vista Home Premium Desktop all five of them passed the Acid 2 test (**http://acid2.acidtests.org**), a web page written to help browser developers ensure proper support for web standards.

However, there's also the Acid 3 test (**http://acid3.acidtests.org**), which focuses on interoperability and dynamic browser capabilities and which, unfortunately, none of the browsers was able to pass. The results we obtained were Firefox 3.1 beta 2: 93 per cent, Opera 9.63: 85 per cent, Chrome 1.0.1: 79 per cent, Safari 3.2.1: 74 per cent, and IE8 beta 2: 21 per cent.

This means that four of the browsers have achieved in excess of 74 per cent compatibility with each other and the official web standards, but they still have a way to go, while Internet Explorer still lags way behind. Remember, though, that the version of IE8 tested was only the second beta and that the release candidate or final release version may fare better.

So what does this tell us? Well, if you're a regular web user and want the very best browsing experience then any of the browsers, with the exception of Internet Explorer, will probably suit you and produce well-rendered pages, although Firefox 3.1 is likely to display the best results. On the other hand, if you build the occasional web page then you'll definitely need to keep copies of Internet Explorer and at least one other browser to ensure your pages look good on both, while web developers are always going to need copies of all five browsers (and prior versions too).

The war continues

Of course there may be other considerations, such as Chrome's ability to sandbox tabs and prevent crashes from bringing down the entire browser, or Firefox and Opera's ability to remember which tabs you had open after closing and re-opening the browser, in which case you should take a look at the features table below.

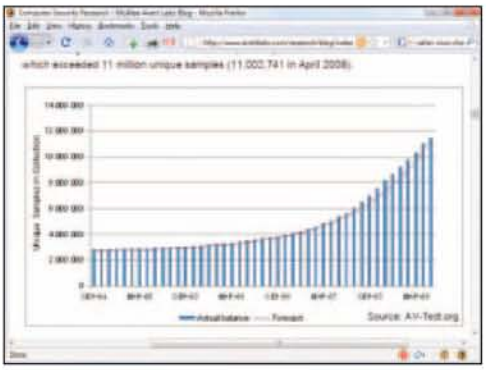
The new era of competition means that, for now, whatever choice you make should not be a disastrous one, since development of the five browsers covered here is continuing apace and, because the developers are all keeping an eye on each other, any innovative features introduced into one browser will surely make its way into the others. **PCW**

Browsers boost security features

With the phenomenal growth of ecommerce and online banking, browser security is now a bigger issue than ever, and phenomena such as phishing and malware are now becoming commonplace. What was considered good security in 2000 is now totally inadequate due to the constant game of cat and mouse played out between malware writers and browser developers.

Thankfully all the main browsers now offer phishing alerts that tell you when you try to visit a compromised website. The databases used are constantly updated and a high level of security is offered. Some browsers, such as Firefox 3, also now come with inbuilt virus checking for downloaded files, a trend the other browsers seem likely to follow.

Even so, a 2007 study showed that 20 per cent of UK PCs scanned with Nanoscan (**http://nanoscan.com**) exhibited signs of either active, inactive or latent malware infections. This means it's still very important to ensure you have both a solid virus checker and an up-to-date malware and spyware remover, on top of whatever security your browser offers, and many commercial products are available, as well as the following freeware offerings:
AVG Anti-Virus Free: **http://free.avg.com**
Spybot S&D: **http://safer-networking.org/en**



A McAfee Avert Labs blog post about the more than 11 million samples of malware in the av-test.org collection, as of May 2008

Top 10 requested browser features

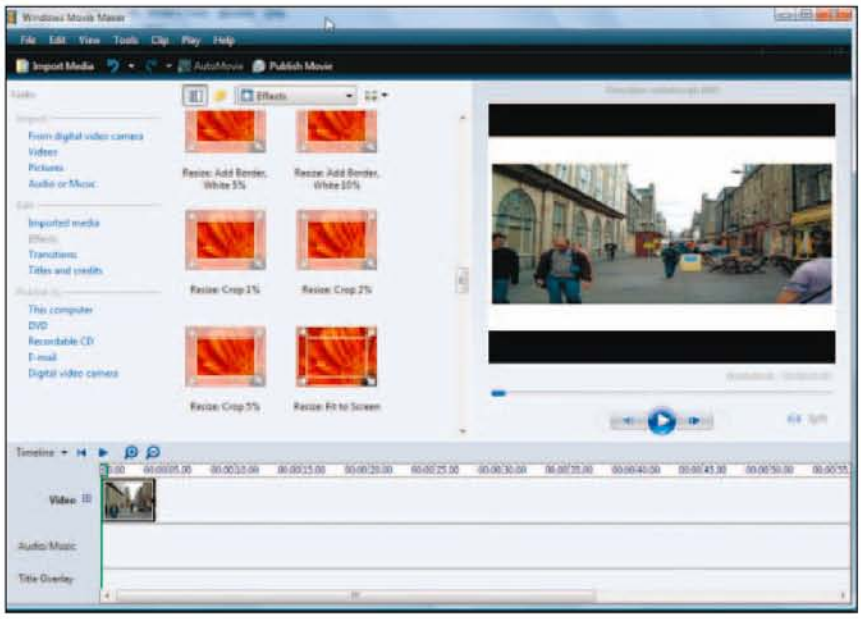
	APPLE SAFARI 3.2	GOOGLE CHROME 1.0	INTERNET EXPLORER 8.0	MOZILLA FIREFOX 3.0	OPERA 9.6
Browser extensions	✔	✘	✔	✔	✔
Full page zoom	✔	✘	✔	✔	✔
Phishing/malware alerts	✔	✔	✔	✔	✔
Pop-up blocking	✔	✔	✔	✔	✔
Remember tabs on close	✘	✘	✘	✔	✔
RSS feed detection	✔	✘	✔	✔	✔
Sandboxed tabs	✘	✔	✘	✘	✘
Spell checking	✔	✔	✔	✔	✔ (Mac)
Toolbar web search	✔	✔	✔	✔	✔
Virus checking	✘	✘	✘	✔	✘

The top 10 default features looked for in a modern browser and the browsers that support them



Microsoft's free Movie Maker needn't be the 'noddy' option for your video-editing tasks. Joe Cassels demonstrates how to get advanced results from it

If you want to make a good-quality video, it's unlikely that Windows Movie Maker is going to top the list of editing applications that springs to mind; it has come bundled with Windows ever since Windows ME and appears pretty basic at first glance. Although it's absent from the public beta of Windows 7, it's likely to be continued as a free download. This free status can lead to it being dismissed as a cheap choice, which it is, but there are ways to extend its capabilities without needing to spring for a professional video application that could set you back hundreds of pounds. Professional-grade programs are a sensible choice if video editing is the primary purpose of your PC, but for occasional use Movie Maker is fine and you can get some pretty polished results. You can achieve advanced effects using simple XML add-ons and you can overcome other limitations by using other free programs alongside it.



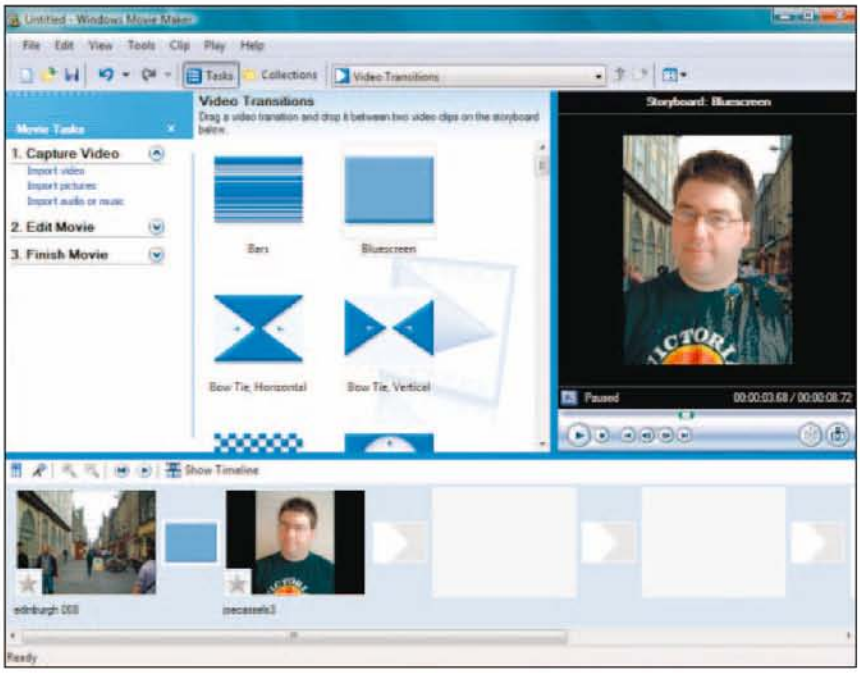
Blaine's Resize Effects enable you to apply quick crop, stretch and resize effects directly in Movie Maker 6

For this feature we'll assume that you've got a working knowledge of Movie Maker and can import clips, assemble them into a project and export the results to a video file (if not, watch out for an upcoming 'back to basics' feature on this topic). We'll concentrate on how to achieve effects that aren't natively supported in Movie Maker.

Cropping and stretching

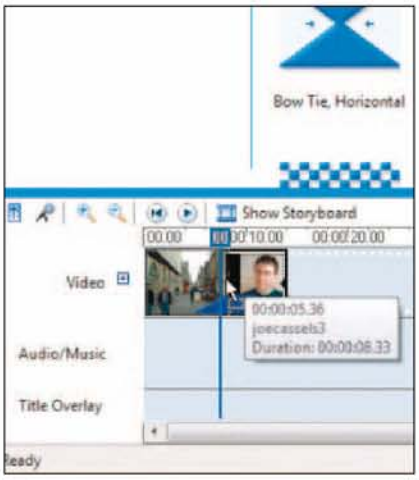
When assembling a project you're likely to be using video from a number of sources that may be of varying size and shape. It can be very useful to crop into a shot to remove unwanted elements around the edge of the picture or to focus in on the action. Sometimes it may help to stretch an irregular picture to match the rest of your footage. It isn't possible to do this in Movie Maker, but the free add-on Blaine's Resize Effects enables it for the Vista incarnation of Movie Maker. You can get it from the Blaine's Movie Maker Blog at **http://tinyurl.com/9kfw2q**. Once installed, this program adds over a dozen resize and crop effects to Movie Maker's effects list. Choose Tools, Effects and drag the desired effect onto the clip that you want to transform, or right-click the clip and choose the Effects context menu. You can resize and add a coloured border, stretch the





Left: Add the Bluescreen transition between the two clips you want to combine with chromakey

Below: Drag the second clip to overlap the first for the duration of your bluescreen effect



video to full-screen or widescreen format and you can crop the video by various fixed percentages to remove unwanted elements.

Chromakey

This effect is well known in TV. You film someone in front of a blue or green screen and then replace the blue or green parts of the footage with video from another source. The most common use is in news and weather studios to place the presenter in front of a map or location slide. The most commonly understood use is filming an actor lying down in front of a green screen and placing him in front of a moving skyline to create Superman flying effects. It can be very useful for producing composite images, but Movie Maker doesn't support it.

However, it's not difficult to get Movie Maker 2.6 to incorporate chromakey using a blue-screen with a simple hack. This is the version of Movie Maker that's distributed with Windows XP, but Microsoft has made a Vista-only version available for use if the bundled version in Vista won't work. Go to **www.microsoft.com/downloads** and search for Windows Movie Maker 2.6 to download and install it. This will run quite happily alongside the native Vista version (Movie Maker 6), as long as you don't try to run both programs at the same time (we found that version 2.6 crashed on first run, then was fine afterwards). They do try to use the same collections file despite the format being incompatible, though. This is not a problem as long as you don't switch between the two versions repeatedly – doing so will lose your collections file, but not the original video clips. The best approach is to render any

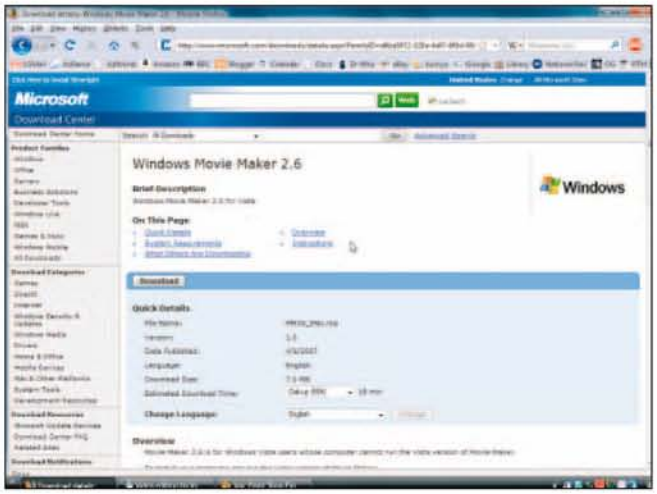
effects shots that require Movie Maker 2.6 first and import them into Movie Maker 6 along with all other necessary clips. This way you get the enhanced features of version 6 after benefiting from the chromakey and other goodies that work in version 2.6.

To enable blue-screen chromakey in Movie Maker 2.6, you need to create a custom XML file that will add a new transition. This was written by the above-mentioned Blaine and posted on the Windows Movie Makers Forum (**www.windowsmoviemakers.net/forums**). To create the XML file open Notepad and enter the following:

```
<TransitionsAndEffects ↙
Version="1.0" >
<Transitions>
<TransitionDLL guid=↙
"{C5B19592-145E-11D3↙
-9F04-006008039E37}" >
<Transition name=↙
"Bluescreen" ↙
iconid="12" ↙
comment="Makes first ↙
clip show through blue areas of ↙
second clip">
<Param name="KeyType" value="1"/>
<Param name=↙
"Similarity" value="100"/>
<Param name="Progress" value="0.0"/>
</Transition>
</TransitionDLL>
</Transitions>
</TransitionsAndEffects>
```

(Key: ↙ code string continues)

To ensure you enter it correctly, copy and paste it from the original post here: **www.windowsmoviemakers.net/Forums/ShowPost.aspx?PostID=39567**. Opt to save as all file types and give it the name bluescreen.xml before saving it to your desktop. Now browse to C:\Program Files\Movie Maker 2.6\Shared. Right-click anywhere in this folder and choose New, Folder. Name the new folder AddOnTFX. Open it and drag the bluescreen.xml file from the desktop to this folder.



The free chromakey effect only works in Movie Maker 2.6, which you may need to install under Vista

Open Movie Maker 2.6 and choose Tools, Video Transitions. You should now see a transition called Bluescreen among them. You now need two clips, one including a subject in front of a blue screen, filmed with good consistent lighting. The other clip should include your background. Import both into Movie Maker 2.6 and switch to the Storyboard. Assemble the clips with the background one coming first and the blue-screen subject coming second. Choose Tools, Video Transitions. Add the Bluescreen transition between the two clips. On the preview monitor you may already see a merged image. Change to Timeline view to alter the length of time that the transition is applied.

By default it will only apply for a second or two, but you'll probably want it to last a bit longer than this. Drag your foreground clip into the background one so that they overlap for the length that you need the chromakey effect. You will end up with some frames either side of your effects shot that won't show the composite image, but you can tidy these up in your final edit later on. Render the shot by choosing File, Save Movie file. You can import the finished shot into Movie Maker again to incorporate it in your project.

Processing audio

One of the biggest limitations of Movie Maker is that it only supports two audio tracks, one for the existing audio on a video clip and the other for narration, music or sound effects. If you want to combine several audio elements, you'll need to compile the clip several times over, adding a new element each time and then importing the new clip back into Movie Maker. This technique works, but it's not possible to go back and alter or remove pieces of audio once they've

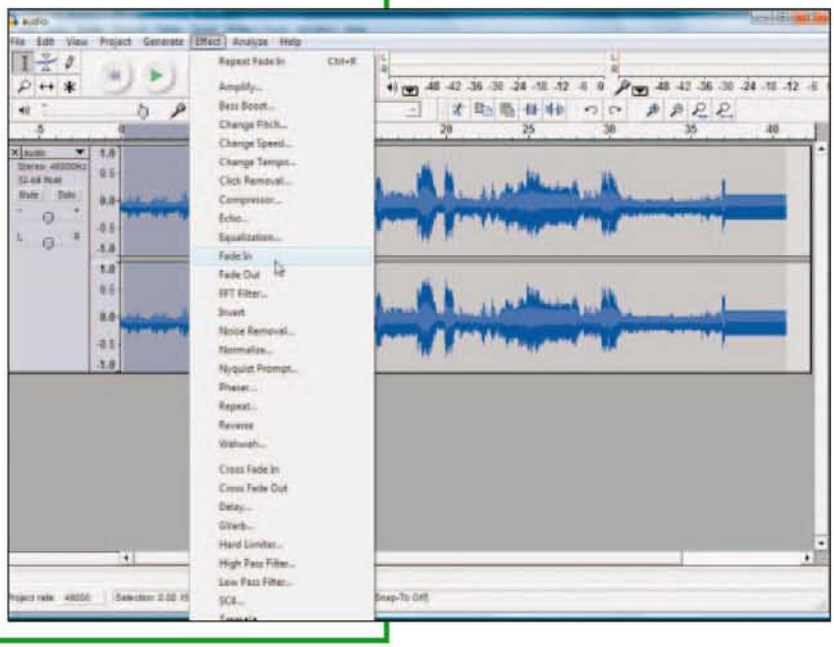
Fading effects

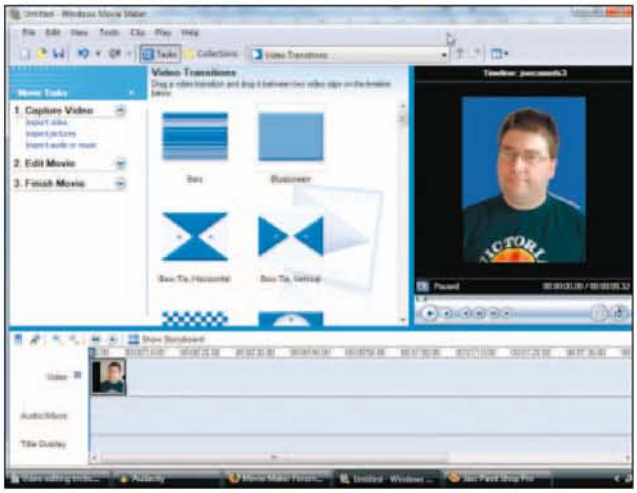
Audio clips that start abruptly can give you a bit of a jolt, which anyone who has started their car up unaware that the radio was still turned on will testify. Any sudden move from relative silence to loud sound feels unnatural. However, without the use of audio effects, your soundtrack will probably be full of them. By changing the abrupt start to a fade you smooth over the transition to make it feel gentler and easier on the ear.

Using Audacity, select the part of the audio that you want to fade and then choose Effect, Fade in or Fade Out. The longer the section of track you highlight, the more gentle the fade will be.

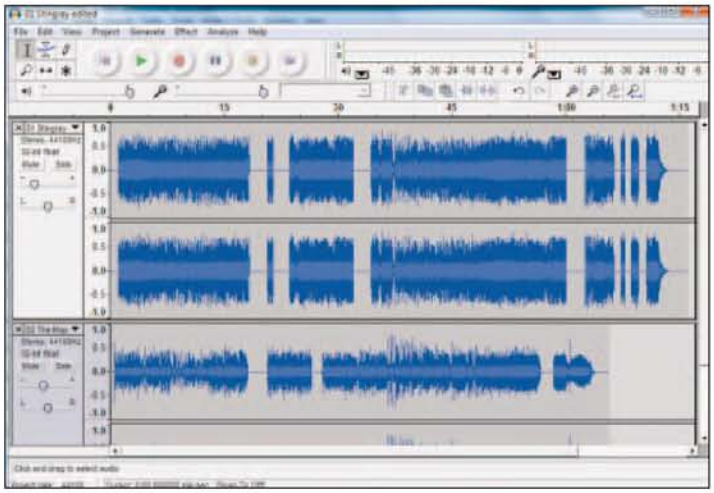
You can apply fades directly to audio in Movie Maker by highlighting the clip you want to use the effect with and choosing Fade in or Fade out from the Audio section of the Clip Menu. You can apply these to the soundtrack of video clips as well as audio ones.

Create a fade in Audacity by selecting the part of the clip to fade and choose Effects Fade In or Fade Out





Record your subject in front of a well-lit blue screen if you want to use chromakey



Audacity enables you to manipulate multiple audio tracks for use in your Movie Maker project

been compiled into the clip. The best way to work around this problem is to treat audio and video separately and use a different application to handle your audio track.

You'll need to strip off the existing soundtrack from your video. You can do this in the open-source video editor, Avidemux (**http://fixounet.free.fr/avidemux**). Launch the program, click Open and browse to the video file containing the sound you want. Under Audio, choose WAV PCM from the dropdown list. Now select Audio, Save and provide a file name ending in .wav, as the program doesn't add file extensions automatically. You can now import this uncompressed audio file into a dedicated audio-editing program.

Audacity (**http://audacity.sourceforge.net**) is ideal for this job; it's free and it supports multiple track recordings. It has some useful features, including noise reduction. To apply this, launch the program and open your sound file. Select a section that should be silent, but that contains background noise. Choose Effect, Noise Removal, Get Noise Profile. Now select the whole track that is affected by this noise and choose Effect, Noise Removal, Remove Noise. Play the track to see if you've corrected the problem. If you haven't, or other aspects of the sound were lost, choose Edit, Undo Noise Removal. Try adjusting the degree of noise removal using the slide control in the effect dialogue.

To deal with a single sound source in Audacity, open the audio file using File > Open. To add more files to the project, choose Project, Import Audio and browse to the track that you want to use. This will be added as a separate track, which you can mix with the original one.

When you've mixed your audio, choose File, Export as WAV and provide a filename and location. You can import this audio into Movie Maker. Clear the option to create clips automatically, as you won't want this audio split into sections. Back in your project, drag the audio clip into the audio track on the timeline. As long as you haven't changed the length of the audio, it should match up with the piece of video you stripped it from, but you may need to zoom into the timeline to make sure the two are properly aligned. Check part of the video that includes lip movement to see if the soundtrack is lined up properly. As all your sound is now in the audio track, you won't need the raw sound from the video, so select it and choose Clip, Audio, Mute.

If you have a short clip where the lip sync doesn't work or if there's something in shot you don't want to show when you've got important audio accompanying it, use a cut-away. This is where you show a different shot over the audio of something related to the subject. To create a cut-away you need to show a clip from one source with the sound coming from another clip. To do this, mute the sound on the video that you'll be using and drag the video clip whose sound you'll be playing onto the audio portion of the timeline underneath your chosen pictures.

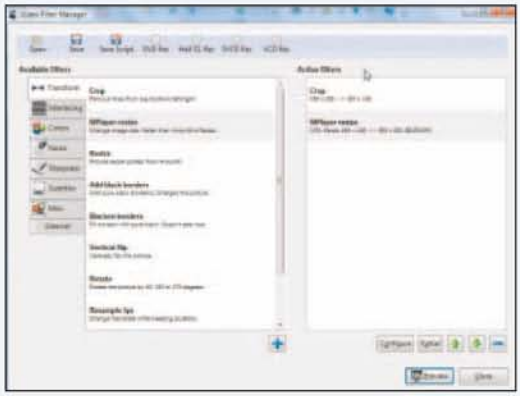
Windows Movie Maker has a lot to offer if you pick and choose the right tools to accompany it. And, as it's all totally free, it's a great way to hone your skills on the basics before splashing out on an all-singing and all-dancing video-editing package. **PCW**

Using Avidemux for better editing

Blaine's Resize Effects is limited to cropping some of the image and stretching it to preset shapes. If you want more control over cropping and resizing, you're better off using Avidemux (**http://fixounet.free.fr/avidemux**). This is a cross-platform clone of the earlier Virtualdub but, unlike its predecessor, the program is still maintained.

Install the Windows version and open the video file that you want to alter. You can only apply effects to video files that are transcoded, so select DVD from the dropdown list. Click Filters and then select crop or resize and use the preview to set the amount to apply to each filter. Click Close, followed by Save and supply a filename and location.

Avidemux is good at applying effects to correct video or to strip off the sound, but it isn't suitable as an editing program in its own right, as you don't get a simple timeline for assembling clips.



Avidemux includes a wide range of video-correction filters

Remote control



Helping people sort out PC problems remotely – or getting help yourself – isn't difficult, and best of all Windows comes with all the free tools you need, as Scott Colvey explains

As a *PCW* reader, you'll probably find that eventually every family member, friend and associate will at some time ask for your help, whether it's how to do a particularly tricky task in a program, or more basic needs. Alternatively, if you're just getting started on expanding your PC knowledge you could be the one who needs assistance from a more experienced friend or colleague. Either way, while plenty of advice can be imparted over the phone or via text messages, if you're not physically at the same location it can be tricky for both parties to communicate precisely what is happening on screen and what needs to be done.

This is where remote assistance can help – and it's a feature built in to Windows XP and Vista (although third-party programs are also available to do this – see box on the next page). Using this technology, it's possible to view the display of a remote PC, making it much easier to diagnose problems without relying on the other party to explain what is happening. Taking things to the next level, remote assistance can also be used to take control of a remote computer, with the result that many problems can be fixed and tasks performed from a distance.

In this feature, we'll explain the basics of how Windows Remote Assistance works, giving those who haven't used it for a while a handy refresher course, and a practical introduction for those who haven't used it before.

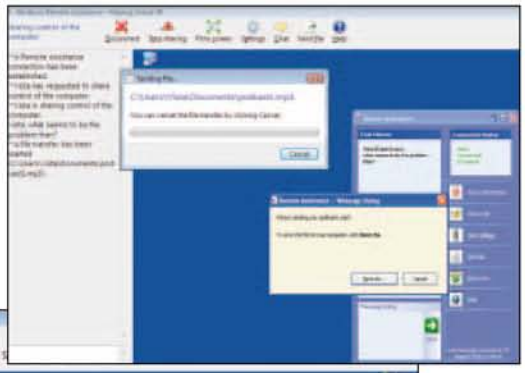
How to help or be helped

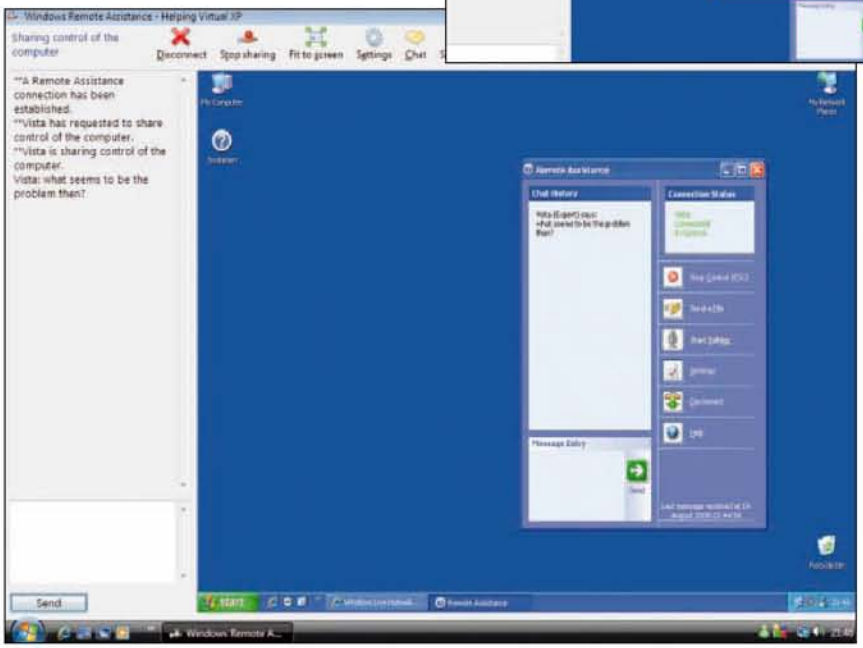
There are a number of ways to start a remote help session, but it's always the person needing help who starts the process. Probably the easiest way to get started is to make use of an instant messaging program, so we will concentrate on this method before looking at the alternatives. In Windows XP, launch Windows Messenger and then select 'Ask for Remote Assistance' from the Tools menu. From the list of online contacts that is displayed, select the one you want to use and click OK. Alternatively, in the main list of contacts, right-click one of them and select 'Ask for Remote Assistance' from the context menu that appears.

In the case of Windows Live Messenger in Windows XP or Vista, open a conversation window with an online contact and click the 'See a List of Activities' button at the top of the screen. From the menu that appears, select Request Remote Assistance. Whether Windows Messenger or Windows Live Messenger is being used, the person who has been asked for help will see an alert that reads '[Contact's Name] is inviting you to connect to their computer using Remote Assistance. Do you want to Accept (Alt & C) or Decline (Alt & D) the invitation?' For the session to start, the Accept link must be clicked.

For both these methods, you and the remote party will need a free Windows Live account in order to use Messenger – we'll

You can easily send files to a remote user during a Remote Assistance session





Windows Remote Assistance lets another user see your PC's entire desktop and optionally take control of your mouse and keyboard

↘



look at alternative ways of using Remote Assistance later.

First steps

Once this has been done, an indication that the invitation has been accepted will be displayed and there will be a short pause while a connection is established between the two computers. Next, a dialogue box will appear asking for the connection to be confirmed. The person who asked for help must click 'Yes' to allow the other person to view their screen. Until this step has been performed, the person who has been asked for help – referred to as the Expert in Remote Assistance – will see nothing but a black screen.

Depending on which versions of Windows are being used, the exact layout of the displayed screen will vary, although the options will be essentially the same. The person being helped will see their usual Windows Desktop – although any desktop wallpaper image is removed – along with a chat window that can be used to send instant messages. The helper, or 'Expert', will see a full-screen window displaying the Desktop of the other computer, and a messaging panel will be displayed to the left of the screen; if this cannot be seen, just click the Chat button.

Messages can be sent back and forth between the Remote Assistance participants just as in a normal instant messaging conversation. There's also the option of sending files or holding voice chats. If the two computers' Desktops are the same resolution, it's likely that the Desktop of the remote PC won't be fully visible; this can be remedied by clicking the Actual Size or 'Fit to screen' button in Windows XP or Vista.

Taking control

Initially, the Remote Assistance session starts in viewing-only mode. This means the Expert can only view what is happening on the screen of the other computer, but there may be occasions when it would be useful for the helper to take control of the remote PC. To do this, click the 'Request Control' button in Vista or 'Take Control' in Windows XP. The person being helped must confirm that the other user should be able to control their computer, and in the case of Vista, they can also allow the Expert to control any User Account Control (UAC) dialogue boxes that may appear.

Once sharing has been started, both parties are able to control the computer of the person being helped – although it makes sense for only the Expert to do so, otherwise confusion may ensue. Either party can stop sharing at any time by clicking the 'Stop Sharing' button or by pressing the Esc key.

Exchanging files

Although having full control of a remote computer means it's possible to make use of its internet connection to download files, this is not always necessary or practical. If a file stored on the helper's computer is needed on the other machine, use the Send

Alternatives to Remote Assistance

Although the Windows Remote Assistance feature is quite powerful, an even more flexible option exists in the form of UltraVNC. UltraVNC is commonly used as a support tool to take control of other computers that are used on the same local network. But it can also be used like Remote Assistance to take control of a remote computer via the internet or used solely to view the screen of another PC.

Just as with Remote Assistance, remote sessions with UltraVNC must be confirmed by the person whose computer is being connected to, helping them to avoid unwanted connections from malicious users.

UltraVNC can be downloaded free from **www.uvnc.com** and, while it's more complicated than Windows Remote Assistance, it is also far more powerful and can be put to a variety of uses. It's definitely worth a look for experienced users.

Paid-for help

There are numerous commercial remote access applications available, such as Gotomypc (**www.gotomypc.com**), I'm in Touch (**www.01com.com/imintouch**) and Log Me In (**www.logmein.com**), but most of these are aimed at getting access to your own PC from a remote location, rather than giving someone remote support. But Gotomypc does allow you to let someone else take control of your PC (and chat to them) and costs £11.99 per month. If you wanted to set up a small remote access and support network for, say, a club or organisation, a Gotomypc Pro subscription is cheaper at just over £110 per PC per year (monthly plans are also available) and allows you to act as a central administrator for users.

Those products aimed purely at remote support, such as Log Me In Rescue, are generally business-oriented, with prices to match – a monthly subscription to Log Me In Rescue costs £76, but this lets you support unlimited users. Log Me In Rescue doesn't require the PC you're assisting to have any special pre-installed software – a small file is sent to the remote PC that allows communication just for the duration of the session.

File option to transfer it securely. As well as sending messages, it's possible to chat using a microphone.

Other methods

So far, we've looked at how a Remote Assistance session can be started via instant messaging, but there are other methods available. Users of Windows XP can ask another person for assistance, while Windows Vista adds the facility for a user to offer assistance to someone.

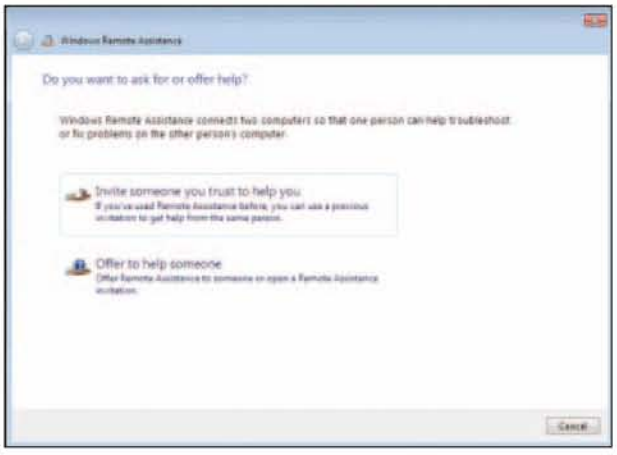
In Windows XP, click the Start button, followed by All Programs, then click the Remote Assistance shortcut. Two methods of asking for assistance are then provided – via Windows Messenger as described previously or by sending out an email request using your default email program. Enter the email

'Once sharing has been started, both parties are able to control the PC'

address of someone you'd like to connect to your computer, then click the 'Invite This Person' link. After typing a message to the contact, click Continue and a number of options will appear on the next screen.

First is the option to place a time limit on the invitation. Use the two dropdown menus to choose how many minutes, days or hours the invitation should remain valid.

The next option is for security, where you can make it possible to password-protect the invitation. Tick the box labelled 'Require the Recipient to Use a Password', then enter and confirm a password. This will need to be communicated separately to the person offering remote assistance, such as in another email or via telephone. Click on Send Invitation, and an email will be sent out on your behalf. The person who has been invited to help will then receive an email with the invitation file attached.



Windows Vista adds the capability of sending requests for help via web-based email

Once this file is opened and the relevant password supplied, a remote connection will be established.

Asking for assistance from Windows Vista is a very similar process. Click Start and type 'remote' before clicking the Windows Remote Assistance shortcut that appears; alternatively, click Start followed by Maintenance and then Windows Remote Assistance. Click the link labelled 'Invite Someone You Trust to Help You', then choose between sending an invitation email or creating an invitation file (this latter option is useful if you use a web-based email service such as Hotmail).

If sending an email, type and confirm a password and click Next before typing the recipient's address and sending the email. If you have opted to create an invitation file, this can be manually attached to an email, or transferred to another computer via a shared network drive or using a USB memory key. The Remote Assistance window will be activated and will await a connection from the person who has been invited – it is important that this window is not closed. As with Windows XP, the recipient must open the invitation file and provide the password that has been configured.

Vista users can also offer help rather than waiting for an invitation. This is particularly useful if you need to offer assistance to someone you've helped before as the configuration process is eliminated. After clicking 'Offer Help to Someone', either navigate to an invitation file that has been saved or click a previously used invite in the list to the right. If offering help to someone using a PC on the same local network (your home network, for instance), it's also possible to enter a computer name or IP address to start a session.

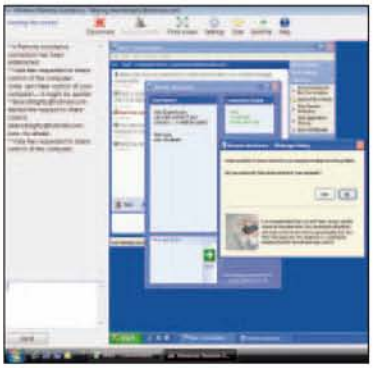
Job done

Remote Assistance is a useful feature that can help fix computer software problems quickly and easily and help avoid the frustration of telephone support or the expense of travelling to fix a PC. The widespread availability of broadband means using such a remote support system is far more practical than in the past. So, next time you're in trouble or someone you know needs a hand, why not give it a go? **PCW**

How to take control of a remote computer



1 After a request for Remote Assistance has been sent, the person asking for help must confirm the connection once the invitation has been accepted. Initially, the helper is only able to view the Windows Desktop of the other computer, as well as engaging in instant message-style chat.



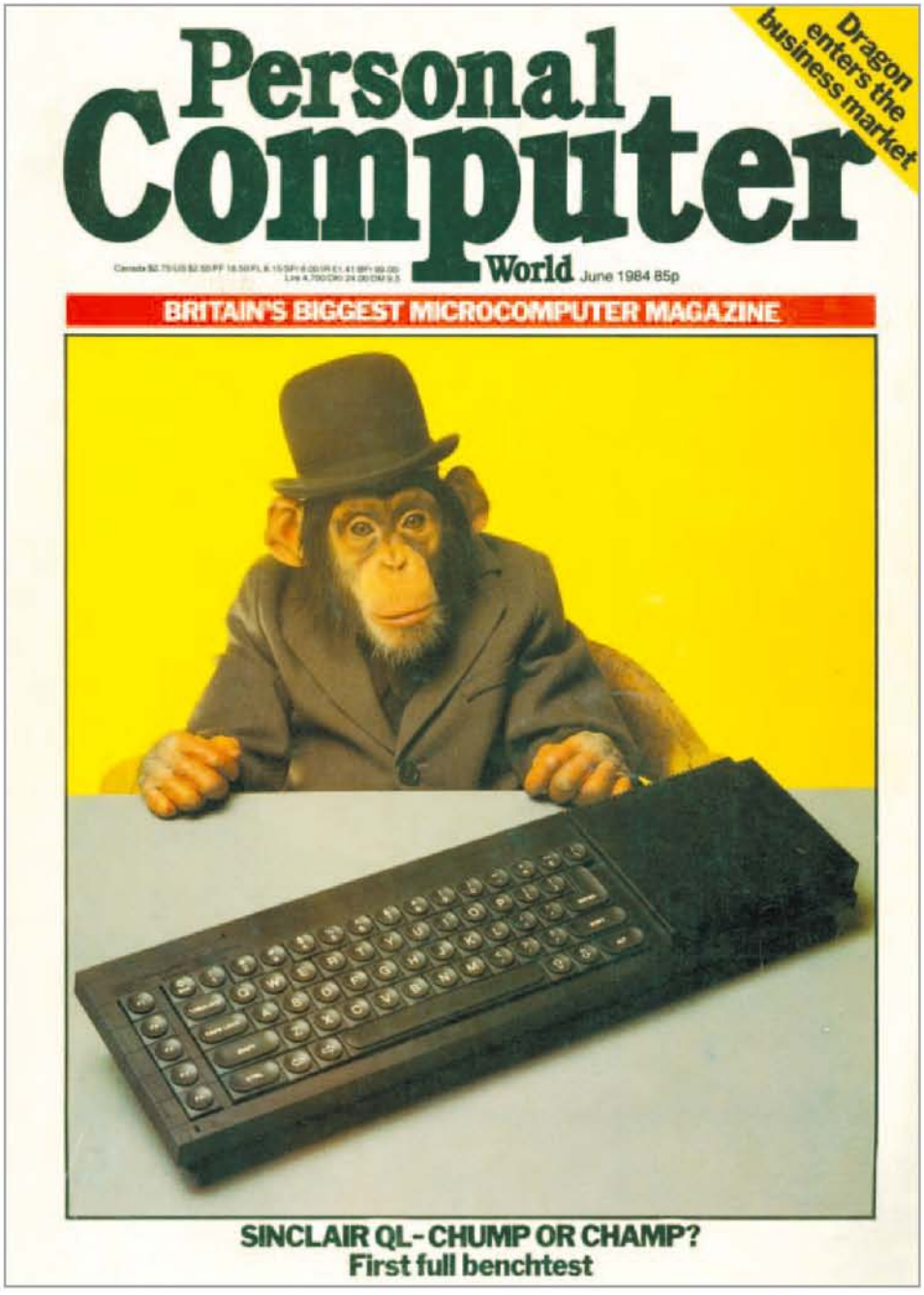
2 In order to use the remote computer and change its settings, the 'Request Control' button must be clicked. The person who is being helped will need to confirm the action before control is passed to the helper.



3 At any time, either party can press the Esc key or click the Stop Control or Stop Sharing button to revert control to the person being helped. To end the session completely, click the Disconnect button.

1984: Sinclair QL

Welcome to the first of a new series of Retro features, showcasing our original reviews of ground-breaking products from the past 30 years. In June 1984 PCW expressed mixed feelings about the new Sinclair QL (see News, page 14). We're not sure about the relevance of the chimp (below), but this remains one of PCW's most fondly remembered cover images.



Sinclair QL

The launch of the QL represents Sinclair's logical progression into the business computing sector. However, the company's failure to honour its 28-day delivery promise has brought widespread criticism but, ironically, given the QL a lot of 'free' publicity. Is it worth the wait? David Tebbutt got hold of the first working model and reports exclusively for PCW.



Was I the only person in the world who wondered what all the fuss was about when the QL was launched? People kept on about the Motorola 68000 processor and the 128k of memory, not to mention a souped-up version of Basic. Multi-tasking and windows were thrown at me in a generous attempt to win me round but everything failed. No matter how I tried, I could not get enthusiastic about the QL.

The responses warmed up a little when I read the descriptions of Psion's four programs — Archive, Easel, Quill and Abacus, which compared on paper very favourably with many commercially available packages. But I was still left with doubts; after all, how can anyone do anything serious with a Microdrive?

It wasn't until I had been using the QL for many hours that I twigged what it was all about. Like the lap-helds and the Macintosh, the QL has been designed for serious personal use. The supplied applications are just what the professional user needs to get started. Of course, the built-in SuperBasic will appeal to the enthusiast, too, but I suspect the bulk of QL sales will be to people who would like a business computer but cannot afford the cost normally associated with such a purchase.

The QL costs £399 including VAT but you'll need a printer which will cost from around £250. If you use your existing television, you are ready to go for £650. I would strongly advise buying a monitor if you plan to use the QL for hours at a time. This might cost you another £250, so you still get away with a computing facility for less than £1000.

The main psychological difference between the QL and the other machines mentioned earlier is that the QL is only available by mail order at present. With the lap-helds and the Macintosh you can go into your local dealer and beat him round the head if anything goes wrong. Not so with the QL. There is a thing called the QLUB which, for £35 per annum, entitles you to a newsletter and software enhancements. (Common bugs are fixed for nothing according to Sinclair.) You may also send written queries about the software and these will be answered in writing (in due course, no doubt). All of which means that you're on your own if things go wrong, or if you simply can't get the hang of something.

At the time I carried out the review (mid-April) there was still no sign of any QL shipments, although Sinclair was saying — with a degree of conviction — that the machines would start trickling out at the end of April. If this is the case, then I think they will be going out with a few known holes in the firmware and with some sort of voucher scheme which will entitle buyers to an upgrade when Sinclair finalises the system.

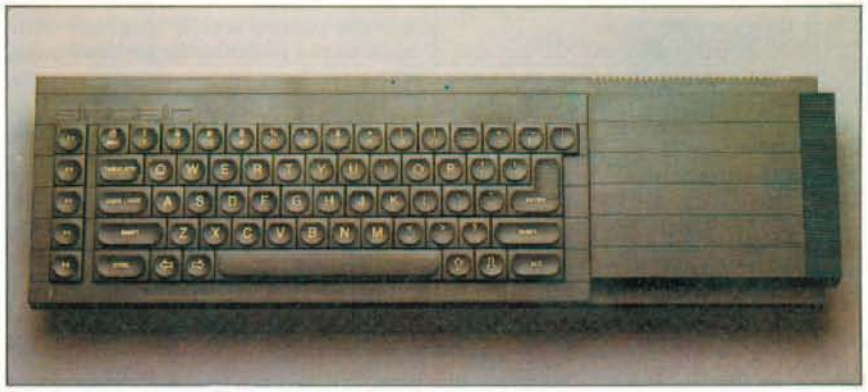
At the moment the firmware is held in three 16k EPROMs which means that one of them must occupy the ROM slot at the back of the machine. You will not be able to run early QLs without this expansion ROM pack. Once the operating system is tucked away on real ROMs, I am told that it will fit inside the QL (on one 32k and one 16k ROM) and the ROM pack slot will be freed. Quite how the upgrade will take place, I have no idea. I suppose some sort of call-in system will be necessary as I can't see the average QL user taking the machine to bits to replace ROMs. I also find it hard to visualise people who have become dependent on the QL giving it up while the problem is sorted out. I suppose this latter group will stick with the expansion ROM until they find they need the slot for something else.

While the QL is only available by mail order, I would expect only those already familiar with computers to buy one. Of course this is a pretty hefty market these days so I don't think Sinclair will be short of customers. Once QLs get into the shops and stores, then I think that computer naive people will be taking a serious look too.

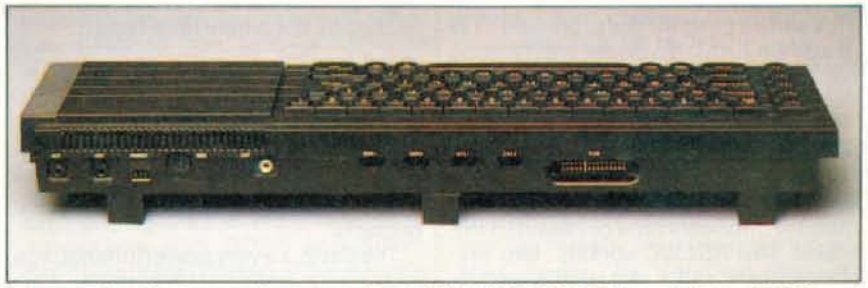
Hardware

A working QL comprises a keyboard with two integral Microdrives, a power supply, a television or monitor and its associated lead. Early versions will also need a ROM pack plugged in at the back. An RS232C cable and a network cable are also supplied with the machine. If you do a lot of typing, you might find the keyboard lies a bit flat. To overcome this, Sinclair has supplied three funny little plastic feet which are supposed to fit into rubber pads under the keyboard. I found that these fell out regularly and in the end I dispensed with them and got used to a new typing position. To compensate for this I found that the printer cable worked first time with my Epson MX 80F/T. The network driver still hadn't been implemented in my version of the operating system, so attempts to talk to my son's Spectrum were doomed to failure.

Just in case you were wondering about the QL's portability, Sinclair boasts that it weighs around three pounds. What it doesn't boast about is that the separate power supply weighs over two pounds! Also, you still need the television and, at eighteen or so inches wide, the QL cannot be slipped into a briefcase like its ZX predecessor.



The keyboard is the 65-key conventional qwerty layout



L to r: sockets for networks, power, 8-pin DIN, UHF, RS232C, joysticks and ROM

Keyboard

The QL has the sort of style the public has come to expect from Sinclair. The potential monotony of an all black rectangular casing is relieved by a textured surface and some ribbing at the right-hand side. The 65-key conventional qwerty keyboard looks very neat, not at all unlike the NCR DMV. Despite the inevitable membrane mechanism underneath, the keyboard feels good and positive in operation. The Microdrives are hidden under the flat area to the right of the keyboard.

The keyboard highlights the fact that we are not really looking at a traditional Sinclair machine. With its ESC key, five function keys, CTRL and ALT, it would seem to represent a quantum leap by this company into the arms of convention. I must say I'm relieved. I felt immediately at home with the QL and found I could get on with the important business of using it for productive work. The '3' key has the hash sign

above it but, don't despair, a pound sign is provided in the top right-hand corner next to a back-slash key, apparently vital when programming in C.

A yellow light at the front of the keyboard tells you when the machine is on and a red light in front of each Microdrive tells you when it's in use. A row of slots under the Microdrives provide a degree of ventilation and also conceal a piezo-electric speaker. A covered expansion port on the right allows up to six Microdrives to be added. Incidentally, they are not the same as the ZX Microdrive although the blank tapes are identical.

The Spectrum and the QL actually format their tapes differently so, if you want to exchange information, you'll need to use the network. The Microdrive cartridges have a capacity of at least 100k. In theory they can take up to 255 sectors, each of 512 bytes on a 200 inch tape loop. A reset key next to the Microdrive expansion port is an improvement on the ZX range which requires you to pull out the power supply lead to obtain the same effect. Like the ZX range, there is no on/off switch on the QL. The left-hand side of the keyboard has an enormous expansion port covered by a removable plate. This will be used for the promised 512k of add-on RAM. No doubt enterprising companies will invent all sorts of devices to plug in here.

Turning to the back of the keyboard, reading from left to right, there are two network sockets, a miniature power socket, an 8-pin DIN socket for the monitor (monochrome or colour), UHF socket, two RS232C sockets, two joystick sockets and a slot with a removable cover for the ROM pack. This pack can hold up to 32k. The RS232C and the joystick sockets are like those newfangled telephone jack sockets. If one RS232C socket doesn't do what you want, you can try the other which has its signalling pins reversed.

Removal of the 10 screws which hold the QL together reveal a very tidy interior. The main PCB is very crowded but neatly laid out. The large Motorola 68008 can be seen on the left, 16 chips make up the 128k RAM, two EPROMs contain the operating system and SuperBasic and an extra 8049 processor controls the keyboard among other things. Four Sinclair-designed ICs control the display, memory, RS232C, network and Microdrives. Over on the right are the Microdrives which look just like the innards of the ZX Microdrives. Behind them is an enormous heat sink which nicely warms the flat panel to the right of the keyboard.

The keyboard is covered by an aluminium plate which when removed reveals the mechanism. The key presses down on a sort of moulded soft plastic dome. The dome has a spike moulded on its inside which in turn presses down on a sheet of plastic printed with metallised tracks. This presses in turn on another similar sheet thus completing an electrical connection between two tracks — one on each sheet. It sounds nasty but it actually works very well. Once you appreciate how the keyboard works, you can feel it in use but I doubt that most people would notice.

I used the QL with a domestic television; and I must admit that it got a bit tiring after a while. I have seen the machine in operation with a monitor and the picture was a lot better with none of the irritating flicker inevitable with UHF. The computer display wraps off the corners of the television screen, another reason why a monitor may be preferable.

On the other hand, it is possible to select from a variety of character sizes and display resolutions so that you can reduce the problems somewhat. Psion gives users a choice of 80,64 and 40-column displays for its programs. The 64-column display works very well: I found myself using that mode all the time.

Overall, I was very pleased with the quality of the QL hardware; it behaved faultlessly the whole time I had it.

Software

SuperBasic

As I mentioned earlier, the operating system and the Basic were not finished on the machine I tested. They were, however, complete in most important respects.

The Basic is a very powerful language with some additional structures over and above the earlier ZX Basics. Particularly impressive is the ability to define extensions to the language using the procedure definition facilities. One current limitation in SuperBasic restricts overall program size to 32k. This is to do with the internal error checking. Sinclair tells me that this restriction will be lifted in due course.

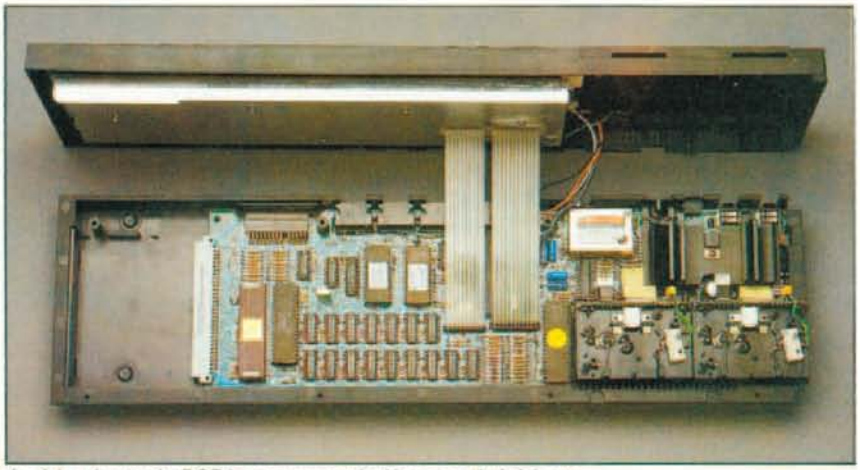
The other major omission in the review machine's Basic was the full screen editor promised at launch. At the time of writing, the only way to edit a line of Basic is to re-enter it.

That's all the bad news; now let's look at what's actually in the Basic and perhaps see why it has been christened SuperBasic.

The Basic follows a similar pattern to all Basics. I had few problems writing little routines. I know I shouldn't admit this but I must confess to having introduced a couple of GOTOs in my programs. SuperBasic doesn't mind; it just makes them a bit unnecessary. Anyway the point of this confession is that you cannot say IF . . . THEN and a line number, you must say IF . . . THEN GOTO. Basic commands must be typed in full — there is no keyword entry system, although I suppose you could create your own using the procedure definition facilities.

An AUTO line numbering system was missing on my copy but I have been assured that it will be included in the released version. This, coupled with a RENUMBER command, will lead to tidier programs. BAUD sets the baud rate of the two RS232C ports — yes, both of them must be set to the same speed which can be one of eight between 75 and 19200 baud. 19200 is reserved for transmission only. BEEP makes sounds through the grotty speaker. Pitch and duration can be varied, as well as things like second pitch and bounce, which 'bounces' the sound between the two pitches. A fuzzy option adds a random number to the pitch on each cycle causing an appropriate distortion. Fine for fun but not of massive practical benefit. I hear that an external sound generator is under development which should help.

The Basic contains an impressive range of graphics facilities as you might expect. Windows, borders and blocks of colour can all be created on the 512 × 256 resolution screen. Up to four



Inside: the main PCB is very crowded but neatly laid out

colours are available in this high resolution mode and the lower resolution (256 × 256) gives eight colours plus flashing.

The MODE command lets you switch between 256 and 512 screen widths. When you define the ink and paper colours, you can also define a stipple pattern but, unless you like shimmering, don't use it on the domestic TV . Character sizes can vary in width in four stages from 6 to 16 bits wide and, in height, either 10 or 20 bits high. This would be useful in headings or in applications for young children or partially sighted people, for example. A PAN command allows you to slide the contents of a window sideways. Once you have lost stuff from the window you can't get it back without regenerating it.

Windows are handled by allocating each one a spare channel then you simply address your Basic commands to the chosen channel. It really is a doddle.

Now for the various control structures available in SuperBasic. Firstly there's DEF FN which is probably already familiar to you. It allows you to define a function which returns some sort of value to the line using it. It also allows you to use local variables through the LOCAL statement. These may have the same name as variables outside the function definition but they will not become confused during execution of the program. DEF FN is terminated with END DEF. Similarly DEFine PROCedure is terminated with END DEF and it, too, allows local variables. When defining the procedure, any parameters needed are placed in brackets: for example, DEF PROC F (LIMIT), but when the procedure is used the brackets are not needed: for example, F 23. You can do some super things with this facility and, of course, it does away with GOSUBs and the complications of parameter passing.

And that's not all. The old familiar FOR . . . NEXT has a new twist. It allows you to slip some commands after the NEXT but before the END. REPeat gives you a repeating loop which you escape via an EXIT command embedded somewhere in the structure. Perhaps you need to wait until an input satisfies a test before moving on. Once again this is an attempt by Sinclair to encourage GOTO-less programming.

The final neat structure I'd like to mention is SELect. Used with ON this gives a similar effect to ON . . . GOTO but you can embed all the actions inside the procedure itself. For example, SELect ON a can be followed by ON A=1 and then all the things you want to happen if A=1. The next ON will stimulate a new set of actions for a second value of A. This command ends with END SELect. Very neat.

SuperBasic has an interesting feature which Sinclair calls 'coercion'. This allows you to mix your variables when performing calculations. For example, it will let you add '2' to '2' and still get '4'.



Archive (the database) is one of four excellent business cartridge programs supplied free with the QL

Finally, the Benchmark timings. They put the QL in the top third or so of all machines tested by *PCW*. Frankly, the comparative speed of machines is insignificant; it's far more important to take the broader view and decide how the facilities offered compare.

QDOS

The QL operating system, QDOS, is busily working in the background whenever the QL is in use. It makes its presence known, for example, when you need to run jobs in different windows and when you are transferring data to and from the Microdrives.

When the QL is first switched on, the screen is divided into three separate windows. The bottom few lines of the screen is a command entry and message display area where all the direct interactions with QDOS and SuperBasic take place. The top of the screen is then divided vertically with the upper left being used for displaying the developing Basic program and the upper right displaying the user view of the program when you run it. The bottom of the screen is attached to channel 0, the listing area to channel 2 and the program execution area to channel 1. It is a simple matter to direct commands to the appropriate channel.

QDOS handles multi-tasking by dividing processing time between the various jobs being executed, and according to their built-in priorities. As I said earlier I couldn't set up an adequate test system to see how this performed. What I do know is that at the launch it was less than impressive. The fact is that the QL can do several things at once. The performance depends more on the quality of the programs running than on the inherent capability of the operating system.

As you may have guessed from the channel numbers, all I/O is device-independent. You simply choose your channel, attach your device to it by saying something arcane like OPEN £5; CON_200×200a50×50_and you have created a 200×200 bit window starting at location 50×50 and with a keyboard buffer of 32 characters. Easy isn't it?

The really annoying thing about QDOS for me was that I had to put an underline at the end of my Microdrive commands. For example 'DIR MDVI' does not give a directory of Microdrive 1 whereas 'DIR MDV1_' does.

Benchmarks

BM1	2.1
BM2	6.4
BM3	10.7
BM4	10.3
BM5	13.2
BM6	26.1
BM7	61.8
BM8	25.8

All timings in seconds. For a full listing of the Benchmark programs see 'Direct Access'.

Applications software

Without doubt, the Psion programs tip the scales heavily in the QL's favour when comparing the system against others.

Four packages are provided: word processor, database system, spreadsheet program and business graphics. I used all four programs to a limited extent. Then I chose to plunge into the database program in detail.

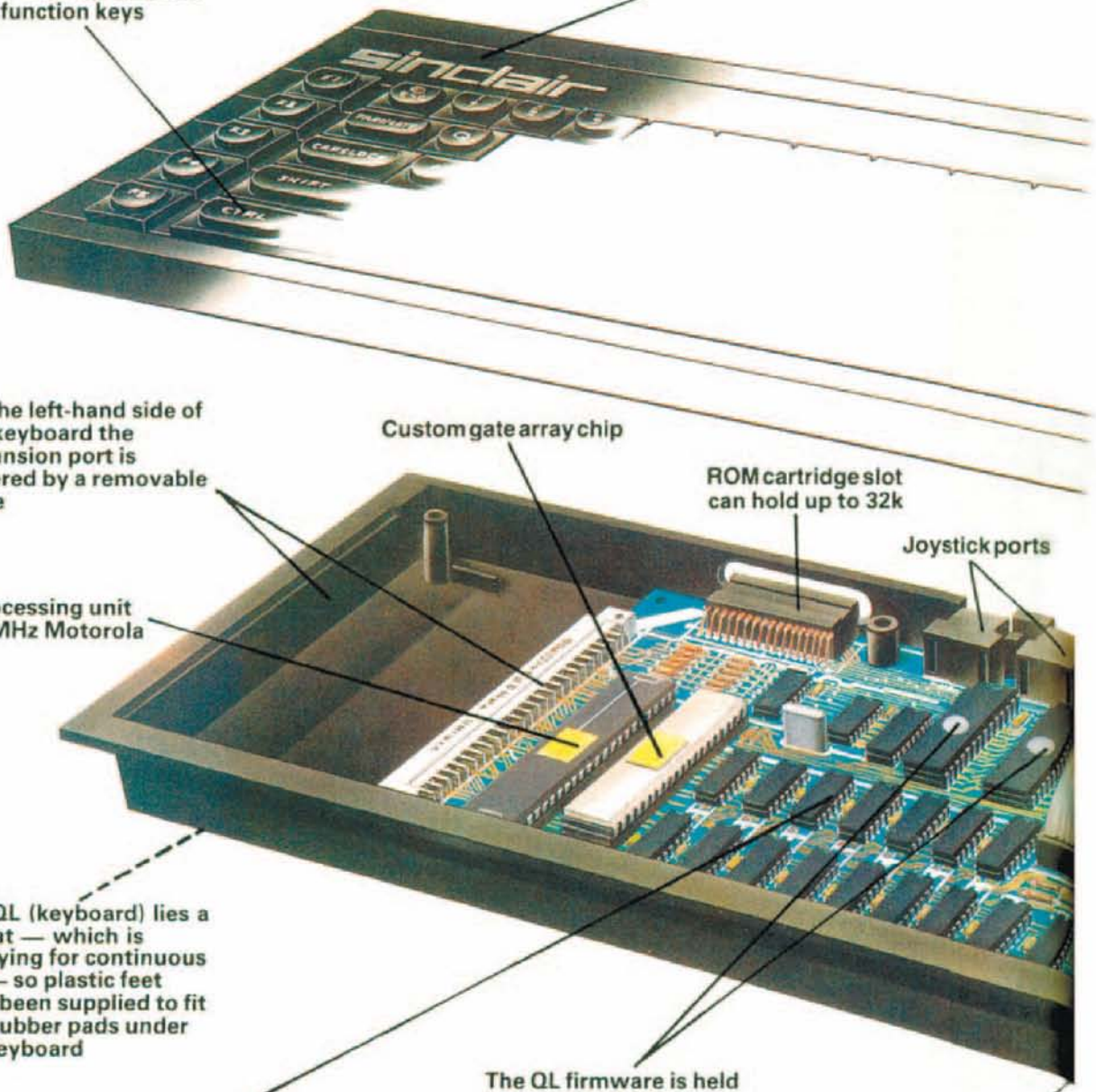
I'll start with the others and then take a closer look at Archive, the database.

Easel was the largest and most complicated to program, yet it appears to the user as the most trivial and the easiest to use. It's great for bringing numbers to life. At the simplest level you can literally load the program and start keying in numbers and immediately a histogram appears on the screen. If you go off the scale it automatically rescales itself and lets you carry on. If you want to enter another set of figures, simply choose a new name and start keying the new ones.

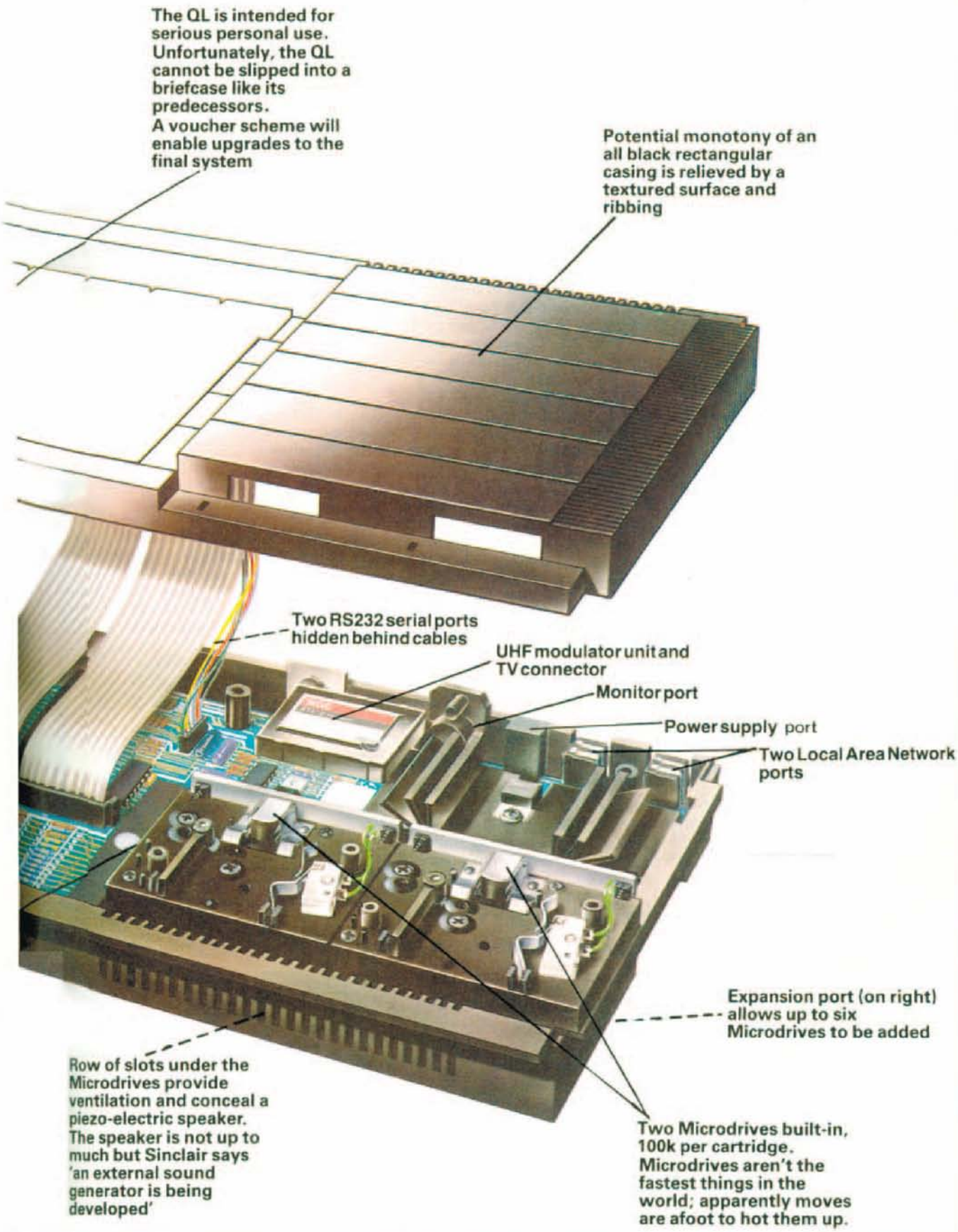
Let's say the first lot were called 'TURNOVER' and the second lot 'COSTS'. You could easily create a third set by saying 'MARGIN=TURNOVER-COSTS'. These can then be displayed individually as histograms, line graphs or pie charts or they can be superimposed on each other to show the relationships between differing sets of figures. Text can be added to the charts, and moved around, and everything can be printed — provided your printer is capable of graphics.

You can read in files which have been prepared either by Abacus, the spreadsheet or by Archive, the database. Such data will be displayed according to the currently selected format. Data can be transmitted from this program to others in the form of tables of numbers.

Deeper inside the package there are



Personal Computer World


The QL is intended for serious personal use. Unfortunately, the QL cannot be slipped into a briefcase like its predecessors.
A voucher scheme will enable upgrades to the final system
Potential monotony of an all black rectangular casing is relieved by a textured surface and ribbing
Two RS232 serial ports hidden behind cables
UHF modulator unit and TV connector
Monitor port
Power supply port
Two Local Area Network ports
Expansion port (on right) allows up to six Microdrives to be added
Row of slots under the Microdrives provide ventilation and conceal a piezo-electric speaker. The speaker is not up to much but Sinclair says 'an external sound generator is being developed'
Two Microdrives built-in, 100k per cartridge. Microdrives aren't the fastest things in the world; apparently moves are afoot to hot them up.

facilities to manipulate text, open windows, vary column widths and transfer data.

Quill, the word processor seems to have very grown-up facilities. I particularly like the fact that what you see on the screen is what gets printed out. Superscripts and subscripts are handled by Quill's built-in special character set.

Underline is an inherent feature of the QL and this is also used to good effect.

Another thing that impressed me was the fact that the current character position is shown by a highlight on the margin ruler at the top of the screen. Quill keeps a word count as you go along, something many professional writers will find invaluable.

Now Archive, the database. I spent hours on this one. It is an extremely deep product. A novice user can use it literally like a card file and be none the wiser after months. Others will find that they prefer to use a special screen layout rather than the default. Some people will want to access multiple files while others will want to build some sort of system around Archive. All these things are possible within the one product.

I started by simply listing the fields into which I wanted to enter data and then creating a simple file of names and addresses. That was easy — it took about 10 minutes. Then I got ambitious and started entering data which exceeded the available space for its entry. The data was accepted although it actually ruined the display. Archive will accept variable length data up to 255 characters per field. In this respect it shows similar limitations to other popular databases.

Since the QL has no character graphics, the design of records is achieved with judicious use of the exclamation mark and the hyphen. The end result is usable but looks a little tacky. Bearing in mind the sort of program size and timescale limitations Psion was working to, I think this is a small price to pay for the power and usefulness of the product.

It is possible to locate records in a file quickly by using the search or locate commands. The first ignores case and the second matches exactly. A sort is built into Archive and it works on the straight ASCII sequence. This means that 'Computer' would come before 'all', for example.

Like SuperBasic you can define procedures within Archive, and the potential for developing applications and new commands is mind-blowing. Suddenly the entire product becomes soft and you can redefine it to suit your needs exactly. For example, do you always open the same files, display them in the same form and then access a particular record. Fine. There's no reason why that shouldn't all be done with two keystrokes — G and ENTER, for example. I chose 'G' for 'Go'. There's a lot of power in this package and it really will repay diligent study.

All the Psion packages have plain English commands, although this does make them a little long-winded at times. They all have extensive help facilities which can be called up at any stage. Psion is about to launch its products onto other machines and I reckon this is an excellent marketing ploy.

People who become used to using Psion programs on the QL will feel much happier if they also use them on their real machines at work. Conversely, people who use Psion on their real machines may want to buy a QL because they've already learned what Psion's products can do.

Documentation

I was provided with preliminary documentation which was adequate. There was no beginners' guide, although I understand that this will be available in the final version.

A Basic keyword summary is provided which explains every Basic instruction in detail. A concepts section runs through all the concepts regarding the QL which is beyond the scope of the Basic keywords section. And each of the applications packages has a guide to itself which acts both as tutorial reference material. Inevitably, with a preliminary document there were many discrepancies between the manual and the products I was using. Structurally, the documentation is fine and I trust the errors will be put right before the final version is issued.

Prices

The price of the QL is £399 including VAT. To this you will need to add the cost of a three-pin plug and a monitor plug if you are using this rather than a television.

At press time Sinclair claimed that deliveries of the machine would start at the end of April. The fact is that in mid-April I had an almost-working machine and set of software. If the machines do go out soon, then I think it is certain that they will have an extension ROM sticking out of the back with software upgrades promised under some sort of voucher scheme. Not the happiest state of affairs.

Conclusion

There's no doubt that the QL is a well made piece of hardware. The operating system, the applications and the Basic look very good, on paper. The review machine was still short of a few facilities. This either means that deliveries will start soon and early buyers will need some sort of upgrade, or that the project is going to be delayed further while the software is completed.

If everything were in place, then I would consider this machine very seriously as a truly personal computer but not as something to run a business on. The Psion spreadsheet, database, business graphics and word processing packages coupled with the limited Microdrive capacity define the market very clearly. The Psion programs look very good in terms of the ranges and quality of facilities offered.

The bottom line is that the QL gives you the potential to own a complete serious computing facility, including printer and essential software, for under £1000. Well under that if you're prepared to use a domestic TV rather than a monitor for the display. END



Technical specifications

CPU	7.5MHz Motorola 68008 plus Intel 8049
RAM	128k (32k used by display). Expansion to 640k coming
ROM	48k QDOS and SuperBasic. 32k ROM pack (see review)
Display	512 × 256 four colour. 256 × 256 eight colour. UHF or RGB
Keyboard	65-key, normal qwerty plus five functions and cursor
Microdrives	Two drives min 100k each. Can expand with further six
I/O	Two RS232. Two joystick. Two network
Languages	SuperBasic
Applications	Quill — Word processor Abacus — Spreadsheet Easel — Business graphics Archive — Database

EDITED BY
NIGEL WHITFIELD

REVIEWS



LITTLE AND LARGE

The rise of mobile computing has been paralleled by the rise of high-speed internet access and new web technologies that make it easier than ever to offer rich applications online. As an alternative to full-blown apps on your portable, or as a way to work collaboratively with others, online office suites have become much more practical and usable over the past couple of years. We tried out seven of them in this month's group test.

At the opposite end of the spectrum, high-performance PCs demand high-performance cases, whether your interest lies in gaming or serious number crunching. So, in the second of our group tests, we've looked at some of the latest cases.

We have also taken a look at Lenovo's first netbook, a brand new AMD-powered system, and lots more.

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Prices include Vat unless otherwise stated

OUR SCORING

Excellent ★★★★★ Very good ★★★★☆ Good ★★★☆☆ Below average ★★☆☆☆ Poor ★☆☆☆☆

OUR AWARDS

Editor's Choice: The best product in a comparative group test. Anything that wins this award is of better quality than its competitors.
Recommended: A product that combines great features, usability and value for money.
Great Value: Not the best in class, but a product that has superior features and performance for the price.
Best Buy: The best product in its class in terms of performance, features and value for money



'The Siemens Gigaset is the flagship of the company's domestic VoIP phone range and deserves wider recognition'

Read the review on page 70

AMD PHENOM II PC

Mesh Matrix II 920

The first AMD Dragon system roars – but quietly



Performance-wise the Matrix II hits all the right notes

The first system we have seen that uses the latest AMD 'Dragon' platform is from Mesh, in the form of its Matrix II 920. Any system using the Dragon platform must have an AMD Phenom II processor, an HD48xx graphics card and an AMD 7 series chipset.

The Phenom II X4, AMD's latest quad-core processor, is the company's first to be built on a 45nm process, with two models available at launch: the 940 Black Edition (3GHz) and the 920 clocked at 2.8GHz, the heart of Mesh's Matrix II.

For the Matrix II 920, Mesh has chosen an Asus M3A78 motherboard to house the CPU, which uses AMD's 770 Northbridge along with its SB700 Southbridge. To keep the CPU cool Mesh has used an Akasa fan which does the job effectively and – most importantly perhaps – quietly. Indeed the Matrix II 920 is not silent but very, very quiet.

Backing up the CPU is 4GB of PC2-6400 800MHz DDR2 memory which should keep the installed Vista Home Premium 64-bit OS happy – and as it's a 64-bit OS it can access all four gigabytes of memory. The motherboard supports up to 8GB of 1,066MHz memory via four Dimm slots, so if you need more oomph, you can add either more of the same memory or install some faster running modules.

Performance-wise the Matrix II 920 hits all the right notes for a mainstream system, scoring a very creditable overall score in PCmark Vantage of 5,289, and 13,081 in 3Dmark06.

Powering the graphics is a His 4850 IceQ card, which is based around ATI's HD4850 GPU with 512MB of GDDR3 memory clocked at the standard speed of 993MHz (1,986MHz effective). Similarly the core engine runs at the stock 625MHz, but the cooler isn't stock. The card uses one of His' own-design IceQ 4 heatsink and coolers, which cool the card more efficiently and are quieter than the reference design.

The card supports full 1080p HD output which is handy for the installed Blu-ray drive and, although the 22in Iiyama Prolite E2208HDS-1 monitor supports full 1080p HD, you'll have to use the DVI port, as the monitor doesn't come with an HDMI port.

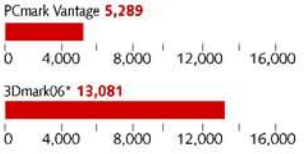
The system is tidily built into an NZXT Hush case, a model we've never seen before, but it makes the system quiet by using slow-spinning 120mm case fans (the one mounted behind the front bezel glows blue, which can be seen through the mesh grille just in front of it), and both the floor and opening side panels have sound-deadening material glued to them, which cuts down case vibration from hard disks etc to a minimum. A 550W power supply unit provides the system's power.

The storage comprises a single 500GB Samsung hard disk, but if you want to expand there's room in the case for another five 3.5in drives and three 5.25in drives; the motherboard supports up to six drives and Raid arrays. All the drive bays have tool-free mounts and there's a Flash card reader built in too.

The Matrix II 920 has no soundcard and relies on the integrated eight-channel audio provided by the motherboard, but with three spare PCI slots and a single X1 PCI-E slot you could add a dedicated card. Mesh includes a Creative Inspire T6100 5.1 speaker setup with the system. Other hardware provided includes a Logitech keyboard and mouse, while the software consists of Microsoft Works 8.5 and Cyberlink DVD Suite. The Matrix II 920 comes with a 12-month return to base warranty.

Simon Crisp

Performance



*Tested at 1,024 x 768 in 32-bit colour

Verdict

Pros Tidily built; near silent in use

Cons Shame the monitor doesn't have an HDMI port

Overall Mesh's Matrix II 920 shows off the latest AMD processor quite well, offering plenty of performance for the everyday tasks, with the added bonus of being almost silent

Features	★★★★☆
Performance	★★★★☆
Value for money	★★★★☆
Overall	★★★★½

Price £749

Contact Mesh
www.meshcomputers.com
08447 360 440

Specifications AMD Phenom II X4 920 (2.8GHz) • 4GB PC2-6400 DDR2 Ram • 500GB Sata hard drive • His HD4850 IceQ 512MB graphics • Gigabit Ethernet • Eight-channel audio

NETBOOK

Lenovo Ideapad S10e

A well-built netbook from Lenovo that deserves a better battery



The Ideapad's performance is akin to Samsung's NC10

While it seems every notebook manufacturer has a netbook or two in their portfolio, a notable absentee has been Lenovo, something that was rectified late last year when the long-awaited Ideapad S10e appeared, a well-designed netbook that cries out for a bigger battery.

One look at its design and you can tell who made it – Lenovo could have named it the Thinkpad Mini, which, in some people's eyes is already enough reason to buy one. As well as the familiar black look the Ideapad is also available in white and red and, despite its plastic construction, the build quality is good enough to survive life on the road.

There are no surprises here; an Intel Atom N270 1.6GHz CPU is coupled with the Intel 945GSE chipset that provides the integrated GMA950 graphics. Performance is akin to Samsung's NC10 and MSI's Wind; PCmark05 CPU score of 2,395 and a Cinebench single CPU test score of 89 are right in the middle of the standard figures for this type of netbook.

The Ideapad comes with 1GB of PC2-5300 DDR2 memory which is split into two parts; 512MB is soldered to the motherboard while the single Sodimm slot holds a 512MB memory module, so if you want a bit more performance you can replace it with a 1GB module – 1.5GB is the most the motherboard can support. Upgrading the memory – and for that matter replacing the hard drive – is a doddle, as both sit under a door in the underside of the Ideapad.

As standard it comes with a 160GB 5,400rpm Western Digital hard drive with Windows XP Home installed. There is a Suse Linux version available that has an 80GB hard disk (£270).

You also get a four-in-one card reader and a surprise in the form of a 34mm Express card slot which can be used to expand the Ideapad's capabilities with additional USB ports, an eSata card or, perhaps the most useful option, a mobile broadband modem.

The 10.1in WSVGA LED backlit TFT screen has a 1,024x576 pixel resolution with a matt coating so you can use it comfortably in a well-lit office or outside on a bright day. The screen produces images that have sharp colours and good contrast. The top bezel of the screen is home to a 1.3-megapixel webcam.

Lenovo is renowned for its notebook keyboards and thankfully the Ideapad follows the family tradition, albeit on a much smaller scale, but even so the build quality of the keyboard is first rate. The keybed has very little, if any, flex to it and, although the keys are very small, the way they have been designed makes the keyboard easy to use even if you have large fingers. The touchpad has been given a slightly textured finish making it easy and comfortable to use.

Apart from the previously mentioned Express Card slot and card reader the rest of the ports are standard netbook fare; two USB2, two audio and a VGA out port. The same rule applies to the communications suite; 802.11b/g Wifi, 10/100Mbits/sec Ethernet and Bluetooth 2 EDR.

The only real letdown with the Ideapad, and it's not alone in this, is the short life of the three-cell 2,600mAH battery. When it was tested in everyday use the battery lasted just one hour, 51 minutes, while in ebook mode it produced a lowly two hours, 43 minutes, and like many of its competitors it could really do with a six-cell battery. *Simon Crisp*

Performance

PCmark05 **1,477**

Mobilemark 2007 **1:51 (hours:mins)**



Verdict

Pros Usual Thinkpad build quality; Express Card slot

Cons Needs a bigger battery

Overall Lenovo's entry into the netbook market was well worth waiting for. The Ideapad is a well-priced, well-built and conceived system, but it would be even better with a bigger battery

Features	★★★★☆
Performance	★★★☆☆
Value for money	★★★★☆
Overall	★★★★½

Price £299

Contact Lenovo www.lenovo.co.uk

Specifications Intel Atom N270 1.6GHz • 1GB PC2-5300 DDR2 Ram • Integrated Intel GMA950 graphics • 160GB 5,400rpm hard drive • 10.1in WSVGA display (1,024x576) • 802.11b/g Wifi • Bluetooth 2 • 1.3-megapixel camera • 2 USB ports • 250x183x22/27.5 (wxdxh) • 1yr warranty

ALL-IN-ONE PC

Advent AIO100

This net-top is ideal for web browsing, email and office work



The latest addition to the net-tops market is the AIO100 from Advent. Net-tops are desktop PCs that use netbook hardware. For doing basic jobs such as email, web browsing and office work the AIO100 is really rather good, and may even spark a revival of the all-in-one PC.

The AIO100 ignores the normal all-in-one approach of building everything behind the TFT panel and instead has a small base unit holding the hardware, with a height-adjustable strut built into it, holding the 18.4in screen, though it does feel a little flimsy. It's a good-looking compact design and ideal where desktop space is at a premium.

Five USB ports are built into the base unit, with two on the right-hand side of the base unit and three on the rear panel. A 4-in-1 Flash card reader and two speakers are built into the top of the unit; The speakers aren't the worst, but they lack depth and volume.

Internally it's standard netbook hardware with a 1.6GHz Intel Atom N270, Intel i945GME Express chipset and 1GB of PC2-5300 DDR2 memory. It's not fast, but its performance is adequate for its target market.

The 18.4in screen has a native resolution of 1,680x945 pixels and, although it does have a glossy finish, it doesn't reflect office lighting too badly.

For storage there is a 160GB 5,400rpm Fujitsu hard disk and a built-in dual-layer DVD burner. There's also 802.11b/g Wifi and Gigabit Ethernet.

The AIO100 comes with a mini keyboard and a slimline mouse. Besides pre-installed Windows XP Home SP3, Cyberlink's DVD Suite and Microsoft Works SE9.0 are included, along with a year's return to base warranty. *Simon Crisp*

Verdict

Pros Good design; good screen
Cons Performance sluggish for a desktop
Overall A really good effort at an all-in-one PC, ideal if desktop space is at a premium and you only need to surf the web, check emails and write office documents

Features	★★★★☆
Performance	★★★☆☆
Value for money	★★★★☆
Overall	★★★★☆

Price £382.99 (web price) in-store price £399.99
Contact PC World www.pcworld.co.uk
Specifications Intel Atom N270 1.6GHz • 1GB PC2-5300 DDR2 Ram • Integrated Intel GMA950 graphics • 160GB 5,400rpm hard drive • 18.4in display (1,680x945) • 802.11b/g • 1.3-megapixel camera • 5 USB ports • 446x278x362 (wxdxh) • 1yr return to base warranty

BAREBONES PC

Shuttle D10

A compact chassis with built-in touchscreen display



Touchscreen technology is all the rage at the moment. Apple's iPhone prompted a slew of touch-sensitive competitors and Microsoft has unveiled its 'Surface' technology that can be used to create large touchscreen systems. And now you can build a PC with its own integrated touchscreen display, thanks to Shuttle's D10 barebones chassis.

The D10 looks much like Shuttle's other small form factor boxes, measuring about 19cm high, 20cm wide, and 30cm deep. However, the front panel of the unit is almost entirely taken up by a 7in touch-sensitive screen (800x480 resolution) that allows you to control the PC without a keyboard or mouse.

The rest of the unit is pretty conventional. Its Intel G31 chipset and LGA775 socket will allow you to install Core 2 Duo processors right up to the E8600 running at 3.3GHz. It won't accept the new i7 processors though, and you're limited to 4GB of DDR2 memory. Graphics are handled by an integrated Intel GMA 3100 processor, and there's a single – rather cramped – PCI Express x1 slot for upgrades.

Shuttle says the PCI Express slot could be used for a TV tuner or video capture card, and the D10 would be good to use as a compact media centre PC. Shuttle says one of its main target markets is for video surveillance systems, which we find a little baffling. The ability to control the D10 by touch would be perfect for playing music – just fire up iTunes and tap on the screen to select your music.

Using it to play video is trickier. The D10 has a VGA interface for connecting it to a large external monitor, but there's no DVI or HDMI interface to connect it to a high-definition TV or monitor. You could upgrade the graphics card for this, but some sort of digital video output would make the D10 more useful as a media centre or home entertainment system. *Cliff Joseph*

Verdict

Pros A built-in touchscreen would be useful for building a media centre PC
Cons Limited video output options and upgrade potential
Overall A nice idea, but the lack of DVI or HDMI is disappointing

Features	★★★☆☆
Performance	★★★☆☆
Value for money	★★★☆☆
Overall	★★★☆☆

Price £319
Contact Ambros www.ambros.co.uk 020 8861 2223
Specifications 19x20x30cm (hxwxd) • 7in integrated touchscreen display with 800x480 resolution • Intel GMA 3100 graphics • Intel G31 chipset and socket LGA775 • Maximum Ram – 4GB/DDR2 • Connectivity – VGA, 4 USB2, Ethernet • 2 internal drive bays • PCI-E x1 slot • 100W power supply and cooling system

NOTEBOOK PC

Toshiba Portégé A600

A lightweight laptop with a five-hour battery life



Toshiba's latest addition to its popular Portégé notebook range is the A600 ultraportable that comes in two models, the 120 and our review sample, the 122. The only difference is the size of the hard disk: 160GB and 250GB respectively.

The silver finish of the A600 is only relieved by the matt black screen frame, chromed mouse buttons and Toshiba logo on the lid. The laptop weighs a mere 1.8kg, including the small power brick, so you can carry it around all day without noticing it. But the light weight comes at a cost, as the wrist pad has a degree of flex to it and the lid is pretty thin and fragile.

The A600 is powered by one of Intel's low-voltage SU9300 Core 2 Duo processors, clocked at 1.2GHz and backed by 2GB of 800MHz DDR2 memory. It won't set the world alight with its performance (PCmark05 score of 2,842), but the processor does have a Thermal Design Power (TDP) of just 10W and a large 5,800mAh battery, so the battery life is impressive. It lasted six hours, 17 minutes with the latest version of Mobilemark 07, tested under normal working conditions and managed seven hours, 18 minutes when used as an ebook.

The 12.1in WXGA screen has a 1,280x800 pixel resolution with LED backlighting. It doesn't have high-gloss coating and the matt finish subdues the colours and contrast a little – but you soon get used to it and it doesn't reflect office lighting.

Although the keybed has a lot of flex, the keys themselves feel good to use, as does the touchpad. A fingerprint reader is also included for added security.

One of the three USB ports is a combo eSata/USB and features Sleep-and-Charge which allows any chargeable peripheral to charge when the laptop is turned off.

Simon Crisp

Verdict

Pros Lightweight; battery life
Cons Thin screen needs protecting when carried around; pricey
Overall The Portégé A600 is ideal for people who are still not convinced by netbooks, but want a small highly portable notebook with a built-in optical drive, but it's not cheap

Features	★★★☆☆
Performance	★★★★☆
Value for money	★★★☆☆
Overall	★★★★☆

Price £949

Contact Toshiba UK http://uk.computers.toshiba-europe.com 0844 847 8944
Specifications Intel Core 2 Duo SU9300 (1.6GHz) • 2GB PC2-6400 800MHz DDR2 Ram • 250GB 5,400rpm hard drive • Intel GMA400MHD integrated graphics • 286x223x29.9mm (wxdxh) • Windows Vista Business SP1 • 3yr international warranty

EXTERNAL BLU-RAY WRITER

Lacie d2 Blu-ray

A stylish multiformat Blu-ray writer for both Windows and Mac



Lacie's products are known as much for their minimal, contemporary design as for their excellent build quality. With expensive-looking metallic housings and sporting designer names – in this case it's Neil Poulton – they're the must-have accessories of all self-respecting media creatives.

In order to work well with both PC and Macintosh systems, the d2 Blu-ray supports USB2 and Firewire 400 interfaces, offering a pair of the latter to enable daisy-chaining of additional Firewire peripherals.

The software provided is also compatible with both Windows and OSX, although there's a different product for each operating system. Windows users get Roxio Easy Media Creator 9 XE for authoring and Cyberlink PowerDVD Blu-ray Edition for HD playback, while on the Mac you'll get Toast 8 Titanium.

A 25GB BD-RE disc is provided, along with a full set of cables and a compact external power supply unit on a conveniently long cable.

Inside the frontless silver chassis, a standard PC Blu-ray drive is clearly visible, festooned with the usual row of icons denoting compatibility with a wide range of disc media. The drive itself is a Matshita (Panasonic) BD-MLT SW-5583 model capable of burning BD-R (write-once) media at up to four-speed and BD-RE (rewriteable) discs at up to two-speed. DVD writing operates faster at 16-speed and eight-speed for single and dual-layer media respectively.

While these speeds may have been, until recently, rather impressive, new products offer six-speed and even eight-speed performance with write-once media. Furthermore, Buffalo's eight-speed external Blu-ray writer is £150 less than the Lacie d2. However, Lacie's design and build quality is considerably greater. Sometimes that matters a lot – but not very often and we would suggest users consider the alternatives before splashing out on such an expensive product.

Paul Monckton

Verdict

Pros Build quality; connectivity; design
Cons Price; performance
Overall A great-looking product that's solidly built, yet very expensive. It's also out-paced by the competition

Features	★★★★☆
Performance	★★★☆☆
Value for money	★★☆☆☆
Overall	★★★☆☆

Price £379

Contact Lacie www.lacie.com/uk
Specifications External Blu-ray drive • Hi-Speed USB2 and Firewire interfaces • Writing speeds: BD-R 4x, BD-RE 2x, DVD±R 16x, DVD±RW 6x, DVD±R DL 4x, CD-R 40x, CD-RW 32x • Cache size 8MB • Toast 8 Titanium • Roxio Easy Media Creator 9 • Cyberlink PowerDVD BD • External power supply • 172.8x44.8x251.1mm (wxdxh) • 1.4kg • 2-year warranty

PORTABLE MEDIA PLAYER

Cowon S9 Curve

A well-designed personal media player that compares well to the iPod touch



The S9 has an attractive design and provides a video playback time of more than 10 hours

The Cowon S9 Curve is a mid-capacity personal media player (PMP) and serious competitor to the Apple iPod touch and other high-end players. With Sony and Samsung's new PMP players due soon, this is one market niche to keep an eye on.

The S9 is an attractive product that's well designed and built, but it doesn't quite live up to its image. At 77g, it's light without being insubstantial, and trimmed with a titanium or chrome effect finish. With a gentle curve at the back, the S9 slides easily into your pocket.

Its most eye-catching feature is the 3.3in Amoled (Active Matrix Organic Light Emitting Diode) screen. This technology dramatically reduces power consumption, and contributes to a video playback time of more than 10 hours and a music playback time of about 55 hours from one charge. Charging takes about five hours via a USB port or three hours through the optional USB charger.

The screen responds nimbly to touch and there are a number of hardware controls across the top including volume and fast forward/rewind rocker switches, and a protruding play/pause switch. At the bottom, the 3.5mm headphone jack is flanked by a combined on/off slider and hold switch. A USB/external device connector will also take a line-in feed to supplement the built-in microphone.

Without multitouch, the S9's user interface isn't cutting edge and left us wanting something slicker. Navigating between folders and individual files after launching music or video applications could be improved; it currently involves juggling menus.

Audio quality is excellent – there's a real sense of air and space from audio files (you'll want to use higher bit-rate files to take advantage of the audio quality). We also liked the Jeteffect equaliser. It has 26 factory presets and four customised presets. You can specify the frequency of the five equaliser channels and disable Cowon's BBE+ audio technology and stereo enhancer.

There's a choice of 24 frequency presets on the FM radio, which is easy to tune, set and record from. The in-ear headphones supplied with the S9 are a cut above Apple's standard issue, but it's worth getting a pair of decent headphones to take full advantage of the S9, or you can use a wire-free Bluetooth headset.

Video playback is equally impressive thanks to the 480x272 pixel screen, and 24-bit colour depth will do your videos justice. Tap the flip control to toggle between basic playback controls, bookmark, aspect ratio, and playlist settings. The auto pivot feature means you can always see video (or photos and slideshows) in the correct orientation, although switching between vertical and horizontal could be quicker. To connect to a TV you'll need the optional video cable.

The USB cable plugs into the same connector, and allows drag and drop file transfer between the S9 and PC. You probably won't bother with the bundled Jet Toys software – most is functionality-limited trial software with no dedicated S9 options in the setup. Jetshell offers device backup and a little housekeeping, but, like the Flash support and text document viewer on the device itself, it seems redundant.

The Cowon S9 Curve is an attractive, well-built PMP with excellent battery life. At £169 it's expensive – the iPod Touch is cheaper, and offers more features and better usability. But if you want hours of excellent quality video and audio playback the S9 should be on your shortlist.

Matthew Moore

Verdict

Pros High-quality screen; long battery life; wide format support; excellent audio and video quality

Cons No memory expansion; user interface needs improvement; no internet access

Overall One to consider if you're serious about audio and video quality

Features	★★★☆☆
Performance	★★★★★
Value for money	★★★☆☆
Overall	★★★★☆

Price £169, 16GB version £199

Contact Advanced MP3 Players www.advancedmp3players.co.uk

Specifications 8GB solid-state storage • 3.3in Amoled screen • Supplied headphones and USB lead • 57x106x13mm (wxhxd) • Bundled Jet Audio software • Audio formats supported: MP3, WMA, OGG, OGG, FLAC, WAV and APE • Video supported: AVI, WMA, Xvid SP/ASP, WMV SP/MP

MULTIFUNCTION DEVICE

Brother MFC-990CW

Compact and stylish, this all-in-one printer is easy to use



There was a time when a desktop multifunction printer was so big it took up most of the desk, but those days are far behind us, as proved by Brother's latest colour inkjet all-in-one MFC-990CW.

It's compact enough to put in a small office and you could even find space for it in a bedroom or study. Measuring 468x375x180mm (wxdxh), the MFC-990CW looks quite stylish, finished in a mix of gloss piano black, satin black and grey.

A 4.2in wide LCD touchscreen dominates the front panel of the printer with large touch-buttons that are easy to use. Some of the menu functions are spread over several screens, but this doesn't present many problems. The rest of the buttons each side of the touchscreen are also easy to use and well labelled.

The front panel holds the print cartridge compartment, so the four cartridges are easy to reach and replace. A Flash card reader (supporting Memory Stick and Memory Stick Pro, SD, SDHC and XD), a separate Compact Flash reader and a Pictbridge port are built into the front of the printer.

The MFC-990W has a print resolution of up to 6,000x1,200 dots per inch (dpi), a copier with a 1,200x1,200dpi resolution and a 1,200x2,400dpi optical (19,200dpi interpolated) scanner; it can even be used for colour faxes.

The connections include USB2, Ethernet, 802.11b/g Wifi and Bluetooth, together with a Dect handset and dock. Bluetooth allows you to send photos directly from a mobile phone to the printer.

The MFC-990CW prints around 15 pages per minute (ppm) in fast draft mode, but this drops to just over 3ppm for normal quality mono and just under 2ppm for colour. It takes around 27 seconds to copy an A4 page of text and 41 seconds for an A4 colour page. Scanning a magazine cover takes around 20 seconds at 300dpi, which is good for this type of device. *Simon Crisp*

Verdict

Pros Good design; touchscreen

Cons Quality of prints is a bit hit and miss

Overall For small-office or home use where print speed or quality are not high on the list of priorities, the feature-rich MFC-990CW is definitely worth considering

Features	★★★★☆
Performance	★★★☆☆
Value for money	★★★★☆
Overall	★★★★☆

Price £211.82

Contact More Computers www.morecomputers.com

Specifications 6,000x1,200dpi print resolution • 4.2in LCD panel • USB2, 802.11b/g, Ethernet, Bluetooth • Card reader, Compact Flash reader, Pictbridge • 468x375x180mm (wxdxh) • 1yr warranty

SCANNER

HP Scanjet N6310

A fast and flexible scanner for small businesses



All-in-one multifunction devices are so popular you'd be forgiven for thinking the humble standalone scanner has had its day, but that's far from the truth. Many busy offices need dedicated printers and scanners, and HP's Scanjet N6310 is firmly aimed at that segment of the market. It's a well-featured 2,400x2,400dpi 48-bit device capable of handling anything from business cards up to A4 documents, including bound and stapled ones.

It's a chunky beast, measuring 502x415x162mm and weighing an impressive 6.7kg, so it takes up a fair bit of space. The styling is business-like, finished in black and off-white, with a USB interface.

The N6310 comes with a 50-sheet capacity automatic document feeder (ADF) and under the scanner cover there is a transparency adapter that can hold three 35mm negatives or two 35mm slides. The controls are on the front panel, which comprises a small LCD screen showing the menu, a three-way navigation button, three function buttons – Power, Scan and Copy – and separate Cancel and Setup buttons.

All the functions and much more are available on the very good and user-friendly HP Scanning software that comes bundled with the N6310.

It's pretty quick – start-up takes around seven seconds. Scanning a magazine cover at the default 200 dots per inch (dpi) took a mere 18 seconds and at 300dpi it took 52 seconds. Even at the default dpi the colour reproduction was accurate and detailed. Scans can be exported to different document types including letter to pdf, letter to searchable pdf, letter to email, picture to file or JPEG.

The ADF is much slower, but the results are still very good and there's also a handy duplex feature.

The software includes Readiris Pro (optical character recognition software), Paperport and Presto Bizcard to organise scanned business cards. *Simon Crisp*

Verdict

Pros Quick performance; excellent software

Cons ADF function is a little slow

Overall A well-featured and quick scanner for the office with some very useful and user-friendly software

Features	★★★★☆
Performance	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Price £377.19

Contact Misco www.misco.co.uk 0800 038 8880

Specifications Flatbed scanner with ADF • 2,400dpi resolution • 48-bit • USB2 interface • 50-sheet ADF feeder • 502x415x162mm (wxdxh) • 1yr warranty

VOIP PHONE

Siemens Gigaset S685IP

A multi-talented and stylish cordless Voice over IP phone

Personal Computer World RECOMMENDED

Offering combined landline and Voice over IP (VoIP) connectivity, the Siemens Gigaset S685IP is a surprisingly powerful, yet affordable cordless Dect phone system for home users. Its features and ease of use put more expensive products to shame.

Although it has been available for several months, the S685IP remains the flagship of Siemens' range of domestic VoIP phones, a range that's kept a low profile but which on this showing deserves wider recognition.

Our review bundle comprised the Gigaset S685IP base station and an S68H handset – but you can buy each separately, mixing and matching handsets from the range if you wish. The base station is a small plain black box with a single large blue-illuminated button used for registering handsets and showing Ethernet status. At the back of this wall-mountable box are the power and analogue landline phone connectors, while the Ethernet connector is at the side.

The base station has a well-designed browser-based interface for configuring the unit, although usefully you can also perform many common setup tasks via simple menus and wizards on the S68H handset itself, so you can get VoIP services up and running without a PC.

This ease of setup sets this phone apart from the obscure procedures found in many VoIP devices. For instance, there's a built-in database of settings for dozens of global VoIP providers (18 in the UK alone), which means that in most cases all you need to do is pick your VoIP provider's name from a list and enter your ID and password. Advanced setup is possible as well, but the ease of connection is a breath of fresh air.

The web interface gives you access to the more advanced features that are the highlight of this phone. You can register up to six VoIP accounts and make three simultaneous calls (two VoIP, plus one fixed line) on different handsets. You can also assign incoming and/or outgoing calls to different accounts on different handsets (up to six Gap-compatible handsets can be registered on up to four base stations each).

Dialling plans let you route particular calls over specific connections, such as routing emergency 999 or 112 calls over the fixed line, and different incoming and outgoing lines can be assigned to each handset. The Gigaset S685IP lets you set up almost unlimited dialling plan entries (up to the base station's memory limit) for this purpose. One important feature missing is the ability to fail-over to the fixed line connection if the VoIP connections aren't working – Siemens told us that a firmware update will fix this in March 2009.

Conditional call forwarding for each VoIP account is available, and you can also set up the system to access your VoIP providers' answering services if required. Otherwise, you can use the built-in digital answering machine for incoming calls on any line.

The S68H handset is solidly built and has a large, bright, 128x160 pixel, eight-line, 65,000 colour screen.



Its hands-free speaker is one of loudest and clearest we've heard on a cordless phone, and sound quality is excellent. Buttons have a positive action, and the four-way navigation pad works well. There are two programmable function keys under the screen, with 13 preset functions to choose from.

The phone book uses the standard Vcard (.vcf) address book format, so you can have three numbers, an email address, anniversary information and a picture for each contact. Using the free Gigaset Quicksync utility (Windows only), you can synchronise your Windows Address Book (or Vista Contacts) with the phone over the built-in Bluetooth link. You can also add your own caller pictures and screensaver images.

Bluetooth can also be used for a headset or even to receive contacts from a mobile phone.

Every Gigaset VoIP phone comes with a free Gigaset VoIP account and phone number built in. This lets you call any other Gigaset user free of charge using your broadband connection, with no configuration needed. The Gigaset service also lets you configure your phone to display services such as a three-day local weather forecast, RSS feed headlines or even a daily horoscope when it's on standby.

Other novel features include SMS capabilities (if your phone provider supports it), a Jabber instant-messaging utility and the ability to check an email account for new messages – you can only see the From and Subject lines, though.

There's very little this phone system can't do and, combined with its excellent call quality, ease of setup and attractive design, it's a great choice for those who want advanced VoIP capabilities at home without the usual setup headaches.

Kelvyn Taylor

Verdict

Pros Stylish; well-built; easy to configure and use; advanced VoIP features

Cons No automatic fail-over to fixed line; no status information on base station

Overall An outstanding VoIP phone that's stylish and easy to use and offers some impressive advanced features

Features	★★★★☆
Performance	★★★★★
Value for money	★★★★★
Overall	★★★★★

Price £99.99 (base station and S68H handset)

Contact Siemens 08453 670 812 www.gigaset.com

Specifications Dect/Gap handset with 128x160 pixel, 65,000 colour display • Base station with analogue phone and 10/100Mbits/sec Ethernet connectors • Up to six SipØ accounts; supports G711, G722, G726 and G729AB voice codecs • Bluetooth data and headset connectivity • Digital answering machine • Pop3 email • Jabber instant messaging • 157x46x107mm (wxdxh, base), 50x28x143mm (wxdxh, handset) • Two NiMH AA batteries • Standby time 180 hours • Talk time 10 hours

BACKUP SYSTEM

Clickfree Transformer

Turn any USB drive into an easy backup device



The Transformer is a USB dongle that enables you to use the Clickfree backup software with any external hard disk.

This system has one obvious weakness: the price. It requires you to own an external hard disk already, so any technically minded user could take that hard disk and create their own backup system, perhaps using the tools built into Windows. The advantage that Clickfree has to sell in order to justify the price of the Transformer, then, is simplicity.

Simplicity is something it does well. When the Transformer is plugged into a PC, Windows will ask to launch the backup software, which is stored on the dongle automatically. Clickfree will then ask you to plug in a hard disk. After accepting the licence agreement you can leave the program alone and it will create a full backup. The next time the Transformer is connected it will do an incremental backup, saving time.

By default, the Clickfree software is set to back up certain file types rather than mirroring entire folders or creating a disk image. On our test PC it automatically copied 85GB of files, including over 10,000 photos, 5,000 music tracks and 2,000 Office documents, creating a very useful backup. Advanced users can tweak the settings to copy entire folders.

The Transformer stores its backups in a folder on the hard disk, leaving the rest free for other uses if you wish, and the connected disk is accessible as a separate drive in Windows.

All things considered, the Transformer will suit some users well and others not at all. For non-technical users, who happen to have access to an external hard disk, it could be an ideal way to keep their files secure. For more technical users, though, £50 will seem a lot to pay for the convenience. *Tom Royal*

Verdict

Pros Brilliantly simple to use
Cons Expensive
Overall A simple backup solution – at a price

Features	★★★★☆
Performance	★★★★★
Value for money	★★★☆☆
Overall	★★★★☆

Price £50
Contact Clickfree www.goclickfree.com
Specifications Backup device • 1 USB2 port • Supports Windows 2000/XP/Vista

VIDEO GLASSES

Vuzix iWear AV310 Widescreen

Make yourself look silly while watching video



Have you always harboured a desire to look like a character from the 1990s incarnation of *Star Trek*? If so, the iWear AV310 is for you.

This piece of eyewear houses a small screen that can play video from any compatible source. It includes a pair of earphones so that the wearer can hear sound as well as see the video, and there's a single cable leading from one side to a control box. This in turn connects to your video source using one of the three supplied cables.

The front section is fairly heavy and most of its weight is brought to bear on the wearer's nose. We found that it started to hurt after only half an hour or so on the first go, but it did get easier with use. The AV310 can, in theory, be worn over a pair of glasses, but we found it easier to take the glasses off and use the built-in diopter adjustment instead.

Picture quality was good, although it's by no means high definition; it can display 3D stereoscopic video if you have suitable clips. Sound was likewise fine, but we didn't like the built-in earbuds and, although it's possible to use your own earphones, this takes away from the simplicity of the design and is a hassle.

The picture that you see on screen is fairly small, and because the AV310 is quite narrow from top to bottom, outside light seeps in, so we had to angle ourselves to block out direct sources of light. A dark room would be better, but the AV310 is really designed for travellers, who don't have much control over such things. A single standard alkaline AA battery will provide about three hours of playing time.

In all, the AV310 is a decent product, and its picture quality does beat watching video on an iPod. But before splashing out, it would be well worth trying them first. *Anthony Dhanendran*

Verdict

Pros Decent picture quality; better than watching on an iPod screen
Cons Fairly heavy so can be uncomfortable; bright lights a distraction; earphones unimpressive
Overall While the AV310 is a step up from the iPod's screen, it's still too uncomfortable to be really useful

Features	★★★★☆
Performance	★★★★☆
Value for money	★★★☆☆
Overall	★★★☆☆

Price £179.99
Contact Vuzix www.vuzix.com 0844 477 2977
Specifications Twin 428x240 LCDs • 16:9 and 4:3 formats • +2 to -5 diopter adjustment • NTSC/Pal

STORAGE DEVICE

Maxell 32GB Solid State External Hard Drive

One of the first eSata/USB devices on the market is speedy and very small

We've been regularly seeing PCs with the 'new' eSata ports for some 18 months now but it's still relatively rare to find eSata devices to plug into them.



Maxell's straightforwardly named 32GB Solid State External eSata/USB Hard Drive is one such device, though. It combines eSata and USB connectivity, with a mini-USB port at one end and the eSata connector under a cap at the other. In theory that provides flexibility with the speed of eSata but compatibility with older computers through USB as well.

In practice it's not quite that simple: very early models of the device only work in Sata mode on combined eSata/USB ports, rather than plain eSata ones. If you're using the mini-USB connection it works normally. Fortunately, the problem is fixed in the latest ones, and a Maxell-installed firmware update is all that's needed if you do get one with this problem.

Once we'd tracked down a notebook with a combined port, performance was good. Using eSata we saw transfer speeds of around 20Mbytes/sec, compared with around 15Mbytes/sec over USB2. In raw numbers, that doesn't sound like much of a boost, though it is 33 per cent faster. Considering it costs twice as much as a basic 32GB USB-only device, it may not be enough of an increase, unless you have specific speed needs.

Whether the Maxell device is right for you is a tricky question. What it boils down to is whether convenience is worth more than capacity. The thinner, smaller SSD wins in terms of size and portability, and it's certainly hardier than the best USB hard disks. But for roughly the same price it's possible to pick up a 2.5in external hard disk – still pocket-sized, realistically – with 15 times the storage space (a 500GB model will cost around £90), or a USB-only SSD may work just as well. *Anthony Dhanendran*

Verdict

Pros Slight speed increase over USB; thin and light; robust

Cons High cost premium

Overall A clever piece of kit, but the high price limits its appeal to the speed freaks only

Features	★★★★☆
Performance	★★★☆☆
Value for money	★★★☆☆
Overall	★★★☆☆

Price £90

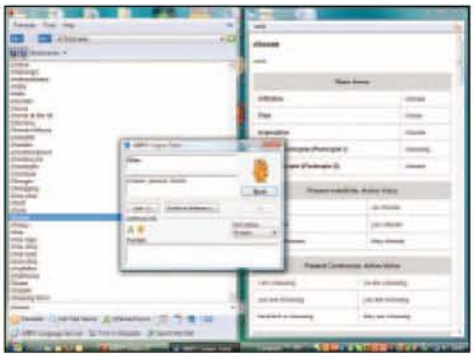
Contact Maxell www.maxell.co.uk 01923 494 400

Specifications 32GB storage • Mini USB2 interface • eSata interface

DICTIONARY

Abbyy Lingvo x3

Basic definitions, single-word translations and a bit of tutoring in one package



Lingvo started as a Russian endeavour, translating European languages for Russian speakers. The x3 (13th) version is more suitable for European users, especially the multilingual package (Italian, Spanish, English, French and German) reviewed here.

At its core, Lingvo x3 contains a dedicated dictionary for each language (the English dictionary has 355,000 word definitions and their inflected forms) and then separate dictionaries to translate between languages. It integrates into Explorer so word definitions can be set to pop up when the cursor sits atop a word or you can highlight a word in any program and then tap Ctrl and C twice to find its definition.

Translation between Italian, Spanish and French is missing, but Lingvo x3 can translate to these languages from English or German. Translation is always limited to single words, while competing software is happy to translate entire sentences, which may be more useful if you're trying to get an overview of some foreign text.

The Lingvo Tutor module included with x3 translates a range of words, useful for tourists, from Russian into its five European languages or from the five European languages into Russian or German. If you intend to try a bit of French, Italian or Spanish, then this module isn't for you.

Lingvo Tutor isn't a foundation to learn a language on, because it only makes you translate a single word at a time, so grammar and sentence construction are neglected. Eurotalk Interactive (**www.pcw.co.uk/2169646**) offers more suitable language software packages.

Advanced linguists already confident with the languages Lingvo x3 supports will find it a useful tool to double-check the odd word or a bit of grammar, but other packages are better for language learning and Collin's £22.99 Dictionary Pro (**www.collinslanguage.com**) is better as a dedicated English dictionary. *Emil Larsen*

Verdict

Pros Valuable and comprehensive dictionaries with useful Explorer integration

Cons Single word translation only, Lingvo Tutor is a shallow elearning tool

Overall Lingvo x3 is great for quick reference, but its learning and translation features are very limited

Features	★★☆☆☆
Ease of use	★★★☆☆
Value for money	★★☆☆☆
Overall	★★★☆☆

Price £65.99

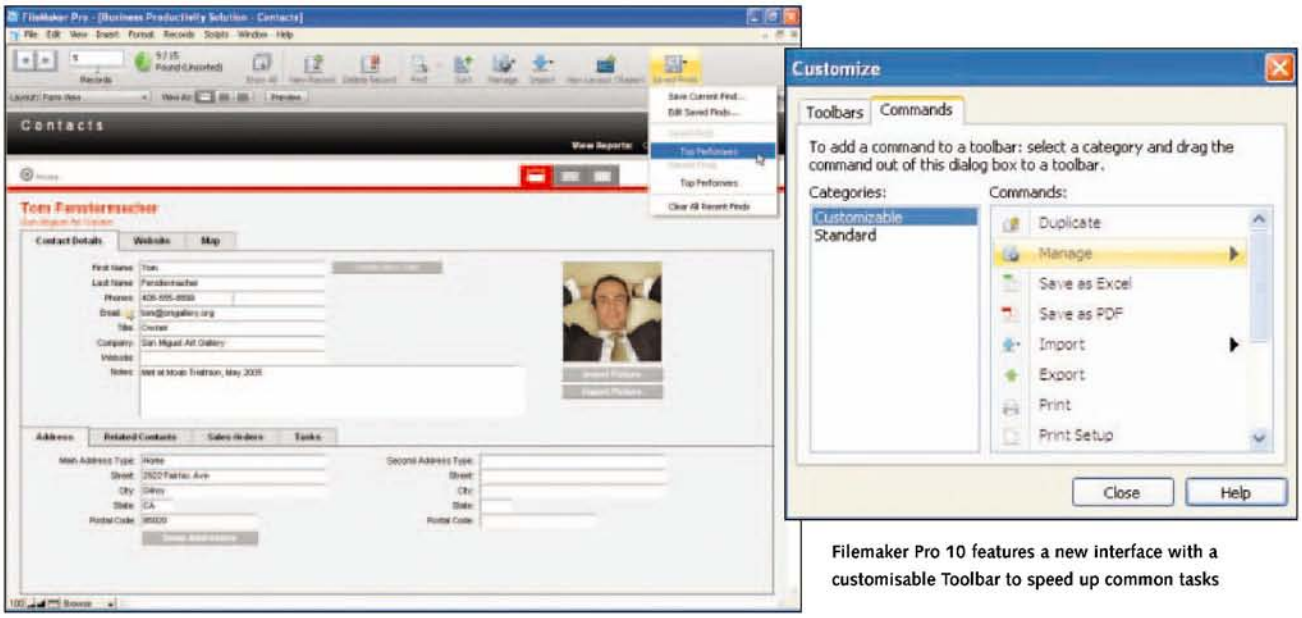
Contact Abbyy 0800 028 4515 www.abbyy.com

Specifications Windows XP/Vista • 1GHz processor • 512MB Ram • 350MB hard disk space

DATABASE

Filemaker Pro 10

A streamlined interface makes this Mac and PC database easier to use



Filemaker Pro 10 features a new interface with a customisable Toolbar to speed up common tasks

There's no Mac version of Microsoft's Access database, so Filemaker Pro has always had the Mac database market pretty much to itself. Its only real competition is Filemaker's own low-cost Bento (**www.pcw.co.uk/2233154**) – a cut-down version of Filemaker. However, Filemaker Pro is also one of the few database programs that runs on both Macs and PCs, so it's used by quite a few large businesses and educational establishments that need to share their database information across both platforms.

This latest version of Filemaker Pro takes a few tips from Bento, with a redesigned interface and new features designed to improve the program's ease of use. Some of the new features are fairly modest – such as the ability to import spreadsheet data in Excel's .xlsx format, in addition to the older .xls format. There's also a number of new 'starter solutions' – database templates that are included to help you get started with common tasks. These cover a wide range of tasks, from organising your music collection at home to tracking business expenses.

The key changes in this upgrade revolve around the program's interface. A number of options that were previously scattered around various toolbars and menus have now been gathered into the Status Toolbar across the top of the screen. You can also customise this toolbar so that it includes just the features you use the most. Just right-click on the toolbar and you open a dialogue box that includes icons representing commands such as 'Save As PDF'. You can then drag an icon and place it wherever you want on the toolbar.

The Status Toolbar is also context-sensitive, and displays different commands in different modes – graphics tools when you're in Layout mode or search tools in Browse mode – and you can customise the toolbar with different commands in each mode. This makes it easy to fine-tune the toolbar so that Filemaker's key features and commands are always right there on screen when you need them.

Other productivity-enhancing features include the ability to save search results and keep these neatly arranged in a pulldown menu in the Status Toolbar so that you can go back and retrieve the results of any search. Whenever you perform a search the program displays a small pie-chart in the Status Toolbar that shows what percentage of records in the database satisfy the search criteria, and allows you to view the 'omitted' records that didn't meet the search criteria.

For more advanced database design Filemaker Pro now includes a series of 'script triggers'. Scripts in Filemaker are similar to macros in a spreadsheet – a series of linked commands that you can save and use to perform routine tasks automatically – and script triggers can be used to activate a script whenever the person using the database performs a specific action, such as entering data into a field or selecting an item from a pulldown menu. This makes it easier for the database designer to control how users interact with the database – perhaps giving them a warning if they enter data in an incorrect format, or even correcting the data automatically to save time. There's also an Advanced version of Filemaker Pro 10 that costs £329, and which includes additional features such as a Script Debugger that provides more precise control over scripting.

The number of new features in Filemaker Pro 10 may seem relatively small, but the more streamlined interface makes the program easier to use, making this an upgrade that can be recommended to any of Filemaker's existing users. *Cliff Joseph*

Verdict

Pros Redesigned interface simplifies many common tasks

Cons The price will be rather steep for many individuals and educational users

Overall It won't have Access quaking in its boots, but the improved ease of use and cross-platform support make Filemaker the best option for organisations that use both Macs and PCs

Features	★★★★☆
Ease of use	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Price £219 (upgrade £131)

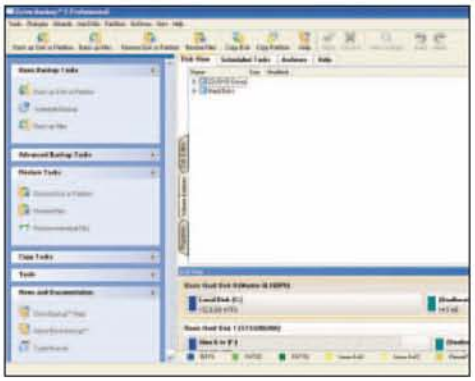
Contact Filemaker
www.filemaker.co.uk

System requirements Windows XP/Vista or Mac OSX 10.4 • 1GHz processor • 512MB Ram

DISK MANAGEMENT & BACKUP SOFTWARE

Paragon Drive Copy & One-Click Backup 2009

Ease of use and powerful storage management in one package



Drive Copy and One-Click Backup is a complete package for those who want graphical control over storage and backup management tasks.

Drive Backup 9 Professional is the Windows utility supplied with the software. It offers a good range of backup and disk management tasks and an intuitive wizard-based interface.

This version offers some useful new features: we were impressed by the ability to make sector-based backups for quick recovery, which you can supplement with incremental file-based backups to save space on backup media. You can also recover Windows Vista or 2008 Server to a new hardware configuration after replacing a failed component, and there is support for multiple OSs through the GUID Partition Table (GPT).

Drive Backup puts tasks in a pending operations list until you confirm, a useful defence against deleting or overwriting data. You can clone a hard disk, backup or restore from a PBF (Paragon Backup Format) file with a few clicks, or choose more specialised disk operations.

You can boot from the CD, too. However, used and unused hard disk space is shown in virtually the same shade of blue, and hard disks aren't referred to consistently between Paragon Drive Backup 9, CD operation, Windows and error reporting.

Better diagnostics, error reporting and signposting would improve this product. When trying to save a 15GB boot disk image to a larger disk, Drive Backup returned an uninformative 'I/O error on hard disk 5', and frustratingly referred us to Checkdisk to fix a minor cluster fault with an iTunes temp file.

The ease of use and the powerful features across a range of media and operating systems make this useful for managing backups and files, especially over a small multiplatform network. *Matthew Moore*

Verdict

Pros Intuitive, wizard-based interface; powerful one-touch features; wide OS support

Cons Drive information sometimes inconsistent; poor error reporting/troubleshooting

Overall A powerful and useful tool, but with annoying inconsistencies

Features	★★★★☆
Ease of use	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Price £39.99

Contact Paragon Software www.paragon-software.com

System requirements Windows 2000/XP/Vista • 300MHz processor • 256MB Ram • 150MB disk space • IE5.0 or higher • CD drive

WEBSITE BUILDER

Mr Site Takeaway Website Beginner

A simple website in a box that is ideal for novices



For many people the process of buying a domain name and building a website to go with it is so simple as to be second nature. What these people tend to forget, though, is that for the rest of the population the whole business of domains, hosting and page creation can be baffling. Mr Site has been selling 'in a box' websites to novices for some time now, and has recently released this newer, cheaper edition.

Takeaway Website Beginner can be purchased online or in a box. The whole process of making the site is done online, but the box includes a CD of handy free software and, most importantly, a clear 92-page manual.

Building a site is, appropriately, easy. After entering the activation code you're prompted for some personal details, and then asked to choose a .com domain name. Having done this you can start building the site. Mr Site sets this out as a six-step process that begins with choosing a design. There are more than 100 to choose from, ranging from the slightly gaudy to the pleasingly inoffensive. With this done you can simply add pages, type or copy in some text, and publish the result in seconds – although, as always, it will take a day or two for your new .com name to start working.

There's a surprising abundance of advanced options, from editing HTML code to adding Google Analytics tracking should you wish, or it's easy to add a simple gallery, blog or discussion forum. You are, however, limited to just five pages and 75MB of storage for your website files.

Overall, Mr Site Beginner does what it sets out to do well. It's simple to use and, at £20 for the first year and £1.69 per month thereafter, it is reasonably priced. For absolute beginners, it's easy to recommend. *Tom Royal*



Verdict

Pros Well priced and easy to use

Cons Limited to five pages – upgrade to 50 costs £15

Overall Simple, inexpensive and ideal for internet novices

Features	★★★★☆
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

Price £20

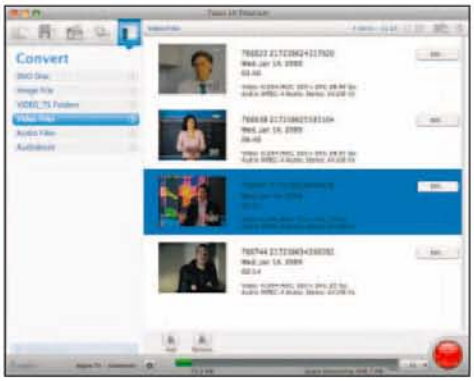
Contact Mr Site www.mrsite.co.uk

System requirements Internet access • Internet Explorer 7 • Firefox 2 • Safari 2 or above

CD AND DVD-BURNING SOFTWARE

Roxio Toast 10 Titanium

A versatile – but slightly buggy – upgrade to this veteran Mac program



Toast started out as a straightforward program for burning CDs and DVDs, but each upgrade sees it spreading its wings wider. This latest version includes new features for capturing audio and video files, which you can then convert into various formats for use on an iPod or other portable device.

The Media Browser palette, which displays the music, photos and video clips stored on your Mac, now includes a Web Video option. This creates a list of video clips you can watch on sites such as Youtube. You can then download these clips and convert them into other video formats.

There's a similar option, called Auto Music Capture, that can be used to record streaming audio from internet radio stations or other sources. This feature worked erratically when we tried it: we would sometimes receive an error message saying that the program couldn't identify the audio file, and we also lost the ability to adjust the volume on our Mac until we had quit the program and relaunched it. Roxio said it was aware of these bugs and is preparing a patch to fix them, but we can't help thinking that its testing wasn't as thorough as it might have been.

Other new features include a simple editor that can be used to isolate and extract specific clips from (non-copy-protected) DVDs, a new selection of templates for creating DVD menus and an option for converting audiobook CDs into audio files with chapter markers, for use on an iPod or other portable player. There's also a 'Pro' version of Toast now available for £119.99 that includes a number of additional programs for working with audio recordings and photo slideshows.

Toast's features are as useful as ever, but Roxio needs to address the bugs we encountered if they are to maintain Toast's good reputation. *Cliff Joseph*

Verdict

Pros Useful new features for downloading streaming audio and video clips from the internet

Cons Bugs have slipped through the net; unhelpful documentation

Overall The new features in this upgrade look good, but Roxio needs to iron out the bugs quickly

Features	★★★★☆
Ease of use	★★★☆☆
Value for money	★★★☆☆
Overall	★★★☆☆

Price £79.99

Contact Roxio www.roxio.co.uk 0844 448 5500

System requirements Mac with 1GHz processor • OSX v10.5 or later

SECURITY SOFTWARE

Norton Internet Security 4 for Mac

A comprehensive protection package for Mac users



Mac users have not needed to worry too much about security in recent years, but a few recent security alerts have convinced more of them to invest in some security software.

Internet Security for Mac is pretty comprehensive; as well as anti-virus it includes Norton Firewall and Norton Confidential to offer protection against phishing and other breaches of confidential data.

Installation required a reboot and, in our case, an additional 60MB of data in updates – the original install is around 90MB – though the initial setup did seem a bit sluggish.

A menu at the top of the screen gave easy access to the component parts. The first anti-virus scan took a while, but subsequent ones were much quicker. Norton Confidential can block phishing sites; in our tests, it worked some of the time, but failed to block some sites that the latest version of Safari flagged as phishing. You can also bar certain types of information – such as addresses and credit card info – from being sent over the internet, unless a password is supplied. A further feature prevents certain documents from being opened – handy on a shared Mac.

The Firewall is 'location aware' and will automatically alter its settings when a Mac is plugged into a different network; it seems to work well, and displays alerts when connections to or from your Mac are attempted – the built-in firewall is one way only.

The suite has an attractive interface, though you have to launch components separately to configure them. It's a reasonable price for a year's protection, and the confidential data protection and automatic location switching are useful – although the latter really just automates things you could do yourself. But for simple protection, it's definitely worth a look. *Nigel Whitfield*

Verdict

Pros Easy to configure and use; fast scanning after first full scan

Cons Phishing protection not as up to date as Safari's own

Overall Reasonably priced protection for Mac users, especially those on the move

Features	★★★★☆
Ease of use	★★★☆☆
Value for money	★★★★☆
Overall	★★★★☆

Price £49.99 including one year's updates

Contact Symantec www.symantec.com/en/uk/norton/macintosh/internet-security 0800 331 6025

System requirements Mac OSX 10.4.11 or higher • Intel or PowerPC processor • 256MB memory • 150MB disk space

THIRD-PERSON ADVENTURE

Prince of Persia

The original Prince of Persia is remade, but can it live up to the Sands of Time trilogy?



The free-running, parkour-inspired moves are addictive but some of the combat requires the sort of button hammering associated with very old games

The Prince of Persia games have come full circle from the devilishly difficult 2D platformer to the spectacular Sands of Time trilogy back to this, a re-imagining of the original.

The story has little in common with past Prince of Persia games. You play a prince who has lost some gold in the desert. He comes upon a princess, called Elika, who enlists him to rid the land of an evil spirit, Ahriman. Elika's father was the one who released the evil spirit, but it later becomes clear that his motives were not all bad. To banish Ahriman, you must visit lands that have been corrupted with slimy black monsters, destroy them and then collect some magic orbs.

The story isn't much cop, but the free-running parkour moves that must be performed to get to the different corrupted lands are excellent. You run through expansive scenery, performing death-defying feats such as swinging from ledges, running up walls and climbing on ceilings. Princess Elika, who accompanies you everywhere, possesses magic powers that enable you to perform longer double-jumps and, once you've collected enough orbs, allow you to perform more impressive tricks such as short stints of flying. It's extremely rewarding to bring together all your free-running skills, letting you almost glide through entire levels with speed and grace.

If your free running goes a bit wrong, then the prince's new claw-glove lets you slide gently down walls. The princess will even use a bit of magic to catch you if you take a serious slip, so you never actually die.

The parkour moves are largely removed once you enter a fight, leaving you to choose between just three different sword attacks or Elika's magic to destroy beasts. Again, you can't die, and should you be beaten too badly, Elika will save you. The combat is very repetitive, with a limited number of attacking options and poorly balanced artificial intelligence. You'll essentially have to block half a dozen attacks in a row before the enemy will let you have a go at attacking.

After a fight you must hammer the 'E' key to banish a plague and regrow lush vegetation using Elika's magic. This kind of button bashing, and the button hammering required during some of the combat phases, is an unwelcome relic of a less sophisticated gaming era.

Prince of Persia's main competition comes from older titles in the series, specifically 2003's Sands of Time. This featured a charming Arabian city, which has been replaced by a dark and brooding atmosphere, and combat interwoven with the free-running sections. This meant you could bounce off bits of scenery and perform the same jumps and wall climbs, something that's been ditched in Prince of Persia.

The voice acting is now corny American, rather than the sincere British voices featured in previous games, and the script has taken a bit of a dive too. Princess Elika usually comes out with bland and repetitive comments that make her unlikeable as a love interest.

Prince of Persia is, however, a good game at its core. The free-running moves are addictive, the cell shaded graphics are very good and there are none of the glitches we've experienced when playing many other recent PC games such as Far Cry 2 and GTA IV. But if you've never played Prince of Persia: The Sands of Time, buy it instead of this version. The Sands of Time is still the better game, despite being five years older – ancient by gaming standards. *Emil Larsen*

Verdict

Overall Great free-running sections but the infuriatingly repetitive combat phases mean this remake doesn't live up to expectations

Overall ★★★☆☆

Price £29.99

Contact Ubisoft www.ubi.com

System requirements Intel Pentium D 2.6GHz or AMD Athlon 64 X2 3800+ • 1GB Ram (XP), 2GB Ram (Vista) • ATI Radeon X1600 or Nvidia Geforce 6800 with 256MB Ram • 7GB hard drive space

PC Essentials

Our pick of the latest components and accessories



Logitech Dinovo Notebook
Price: £69.99
www.logitech.com
Overall score: ★★★☆☆

The Dinovo Notebook is a full-sized keyboard with a numerical keypad, dedicated media keys and dual-function F-keys to handle common tasks such as web browsing, email and media playback. Each of these can be customised, offering an impressive degree of versatility. We liked the sleek design and the keyboard is very comfortable to use, though a few of the key arrangements can take a little while to master. However, with no mouse control built in this is a rather expensive way to offer a relatively small degree of additional comfort.



Zalman CNPS9900 LED
Price: £55.99
www.quietpc.com
Overall: ★★★★☆

The latest CPU cooler from Zalman is the CNPS9900 LED, part of its Tunnel Flower CPU cooler product line. It's suitable for CPUs up to and including Intel's i7 and AMD's Phenom. The pure copper heatpipe cooler measures 158.5x140x94mm (hxwxh), weighs in at 782g and is cooled by a single, quiet (from 19.5dbA) 120mm fan sitting between the two cooling banks.



Akasa TIM Kit
Price: £10.34
www.overclockers.co.uk
Overall: ★★★★☆

Simple but nevertheless very useful, Akasa's TIM kit is an ideal present for any overclocker. It comprises a 5g syringe of the company's high-performance, high-viscosity AK-455 thermal compound – which is suitable for CPUs, GPUs and chipsets – a plastic spreader card and a 125ml bottle of the best thermal paste cleaner around – TIM clean.

Scythe Kama Panel 3.5in
Price: £29.99
www.quietpc.com
Overall: ★★★★☆

Scythe's Kama Panel is a neat little box that fits into any spare PC 3.5in drive bay that has external access, and is ideal for those who don't have a Flash card reader or eSata capability. As well as the 15-in-1 card reader, there is a single eSata connector with both data and power ports, a single USB port, two audio ports and a two-channel fan controller.





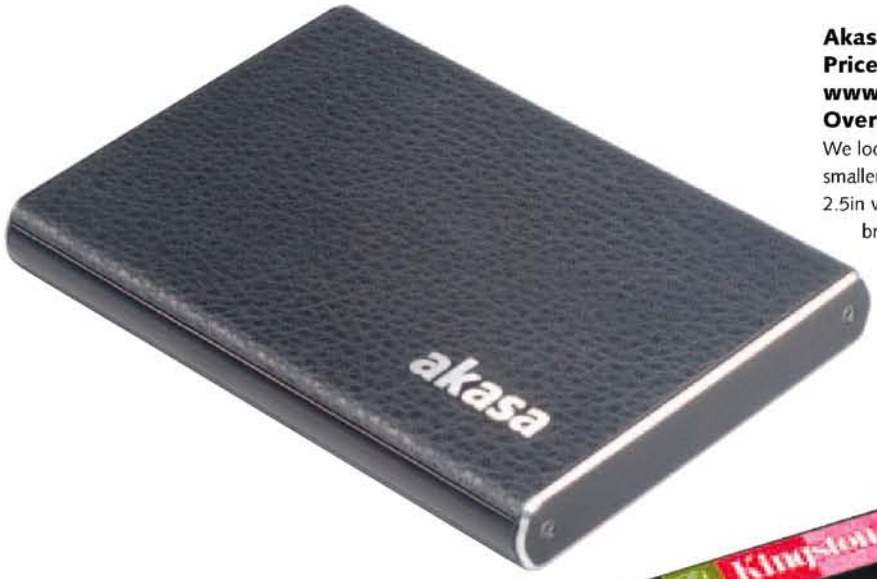
Genius Netscroll G500 Laser gaming mouse
Price: £19.99
www.amazon.co.uk
Overall: ★★★☆☆

There are plenty of weighted gaming mice out there, but not many that use coins for the weight adjustment as the Genius G500 does. The top flips open to allow you to add coins until you get the correct weight. Also adjustable is the resolution, which can be set to 800, 1,600 or 2,000dpi. There is a different coloured LED for each so you know which you are using.

Antec Notebook Cooler 200
Price: £49.88
www.lambda-tek.com
Overall: ★★★☆☆

If you have a high-end gaming notebook or a notebook with a desktop processor fitted you don't need anybody to tell you how hot they can get. The Notebook Cooler 200 is large (330x284x22mm), weighing in at 700g. It has been designed to work either on a flat surface or a lap, using one of Antec's Big Boy 200mm fans to keep things cool.





Akasa 2.5in Elite (AK-IC009-BK)
Price: £22.99
www.overclockers.co.uk
Overall: ★★★★☆

We looked at the 3.5in Elite last month, now it's the turn of its smaller sibling, the 2.5in version. Just like its bigger brother the 2.5in version is a leather-finished aluminium enclosure with a brushed aluminium fascia. It supports both 2.5in Sata and SSD hard drives and has both eSata and USB2 external interfaces. It comes with all the drive fixings and the appropriate cabling.



Kingston SSDNow E and M series SSD drives
Price: SSDNow E £529.99 SSDNow M £389.99
www.mymemory.co.uk
Overall: ★★★★☆

Kingston has recently teamed up with Intel to release a series of SSD drives, the high-performance and expensive SSDNow E series with a 32GB capacity and a 170Mbytes/sec write speed, aimed at the enterprise server market or those with very deep pockets, and the more mainstream M series with an 80GB capacity and a much slower 70Mbytes/sec write speed, aimed at notebook users.

Best Buys

Your one-stop guide to the best-value products reviewed by PCW

With countless products available, shopping around for a new PC, peripheral or software package isn't an easy task, but with our Best Buys guide, you can make a quick purchase with confidence. We've split our Best Buys into 40 of the most popular categories, covering everything from desktop and notebook PCs right through to digital cameras and software.

Every month we'll update our Best Buys to include our most recent reviews and check the current pricing, although that's not to say you won't find a bargain online (try our price comparison site at **www.pcw.co.uk/bestprices**). You'll also find the date of the magazine in which the product was first reviewed, along with an alternative suggested product for that category. If the Best Buy entry has a web code listed alongside it, this means you can read the full product review on our website. Simply head online and use the format **www.pcw.co.uk/[web code]** – for example, **www.pcw.co.uk/2208243**.

Each Best Buy product has gone through our rigorous testing and reviewing procedures, making this your one-stop guide to the best products on the market.

BUDGET PC



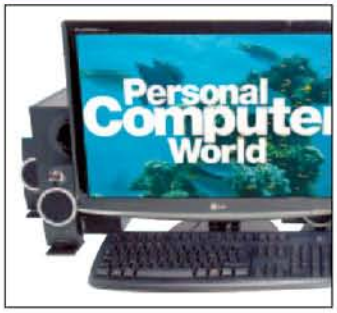
Zoostorm 3364-2354
Price: £499
Reviewed: July 2008
www.pcnextday.co.uk
Web code: N/A
This PC comes with a quad-core Intel Q6600 processor, 2GB of Ram, a 250GB hard disk and a 19in TFT. The only downside is the integrated graphics, but with expansion opportunities inside the case, this can be rectified.

ALTERNATIVE

Chillblast Fusion Sentinel
£699 www.chillblast.com Web code: 2211955
A well-built, quiet PC with a quad-core processor, good all-round performance and space inside for future upgrades. It also features a Geforce 8800GT graphics card.

HIGH-END PC

PC Specialist Fusion 4870X2
Price: £1,499
Reviewed: December 2008
www.pcspecialist.co.uk
Web code: N/A
A rare AMD-based system, this PC is perfect for high-end gaming and video editing. It features a dual-core 4870X2 graphics card, X4 9950 quad-core CPU and 8GB of Ram. You also get a decent 24in TFT.



ALTERNATIVE

Wired2Fire Diablo Extreme
£3,299 www.wired2fire.co.uk Web code: N/A
A fast and well-featured machine based on the new Core i7 architecture. It's relatively quiet with plenty of future-proofing.

BUDGET NOTEBOOK



Samsung Q210
Price: £675.98
Reviewed: November 2008
www.samsung.com/uk
Web code: N/A
It's not suited to gaming, but this notebook has all the benefits of Intel's latest Centrino 2 platform. Powered by a T8400 Core 2 Duo processor clocked at 2.26GHz, it's a stylish workhorse computer.

ALTERNATIVE

Hi-Grade D7000SRL
£499 www.hi-grade.com Web code: N/A
With a stylish chassis, decent performance, Bluetooth and HDMI, you get a lot for your money with this 15.4in notebook.

HIGH-END NOTEBOOK

HP Pavilion dv7-1000ea
Price: £899
Reviewed: December 2008
www.hp.com/uk
Web code: N/A
Based on Intel's Centrino 2 platform, this notebook combines stylish design with high-end performance. It also has a Blu-ray reader and a crystal-clear 17in display. It's heavy, but as a desktop replacement it's perfect.



ALTERNATIVE

Acer Aspire 8920G
£1,289.99 www.acer.com Web code: N/A
Thanks to a recent price drop, this 18.4in notebook is now even better value for money. Highlights include a 2.5GHz processor and Blu-ray drive.

WINDOWS HOME SERVER



Fujitsu Siemens Scaleo 1900
Price: £469
Reviewed: July 2008
www.fujitsu-siemens.co.uk
Web code: N/A
It might not be the most attractive piece of computer kit, but this Windows Home Server from Fujitsu Siemens has good read-and-write performance and comes with some useful added extras.

ALTERNATIVE

Belinea O.center
£386.58 www.belinea.com Web code: N/A
With a striking design and solid performance, the O.center is a great little Windows Home Server with easy hard-disk access and good diagnostic tools.

ULTRA-MOBILE PC

MSI Wind
Price: £336.05
Reviewed: Christmas 2008
www.msicomputer.com
Web code: N/A
This netbook offers good battery life and a larger screen than many other models. With 1GB of memory and a 160GB hard drive, the MSI Wind is well specced all round and represents great value.



ALTERNATIVE

Acer Aspire One
£200 www.acer.co.uk Web code: 2220487
This portable notebook combines a decent keyboard, clever storage system and a great design. Its Intel Atom processor runs at 1.6GHz, backed up by 512MB of Ram.

BUDGET GRAPHICS CARD



Palit Geforce 9600GT 512MB Sonic
Price: £121.32
Reviewed: June 2008
www.palit.biz
Web code: N/A
The G94 GPU used by this card is basically a cut-down version of the G92 8800 and GTS cards, but with fewer, yet faster-clocked, stream processors.

ALTERNATIVE

Asus EAH2400Pro
£32.89 http://uk.asus.com Web code: N/A
This card features low power consumption and, although not as fast as the Radeon HD 2400 Pro cards, it's cheap and has some impressive video capabilities.

HIGH-END GRAPHICS CARD

Sapphire Radeon HD4870
Price: £181.76
Reviewed: October 2008
www.sapphiretech.com
Web code: 22233563
A fast card at a great price. To give an idea of the rendering potential of this card, it managed 46 frames per second with 4x anti-aliasing and 4x antroscopic filtering turned on at 1,280x1,024 resolution.



ALTERNATIVE

Zotac Geforce GTX 280 AMP Edition
£366.27 www.zotac.com Web code: 2223078
Zotac's version of the GTX 280 is the fastest single-core graphics card we've tested. The board also supports Nvidia's Hybrid Power technology.

TFT (17-22IN)



Philips 220WS8
Price: £189
Reviewed: February 2008
www.philips.co.uk
Web code: N/A
This 22in TFT screen has superb image quality, is evenly lit and with a power draw of just 35W is also extremely efficient. The icing on the cake is Philips' excellent pixel policy. A great buy.

ALTERNATIVE

Viewsonic VX2255
£259 www.viewsoniceurope.com Web code: N/A
The VX2255's clear and excellent pixel policy, along with its multimedia features, make it great value at £259, despite the distinctly average image quality.

TFT (24IN+)

Philips 240BW8
Price: £309.95
Reviewed: September 2008
www.consumer.philips.com
Web code: N/A
This 24in screen has a professional feel and is well suited to any application where you need to be sure that your on-screen colours are accurate. It also comes at a good price and features HDCP support.



ALTERNATIVE

Iiyama B2403WS
£299.60 www.iiyama.co.uk Web code: N/A
The 24in B2403WS from Iiyama offers a good balance of performance and features, and is suitable for a wide range of uses.

SMARTPHONE



Apple iPhone 3G
£ from free
Reviewed: December 2008
www.apple.com/uk
Web code: N/A
It might not have as many features as some of its rivals, but the iPhone benefits from outstanding ease of use, a superbly stylish design, 3G (new to this version) and an online applications store.

ALTERNATIVE

RIM Blackberry Bold
£ from free http://eu.blackberry.com Web code: N/A
Once the sole domain of business users, the Blackberry now features a similar level of consumer features as high-street phones.

SAT NAV

Tomtom Go 720
Price: £309
Reviewed: February 2008
www.tomtom.com
Web code: N/A
You're paying a bit more than you might for a number of perfectly capable rivals, but you get so much for your money with the Tomtom Go 720, including a customisable display and great performance on the road.



ALTERNATIVE

Mio 620t
£269 www.mio-tech.be Web code: N/A
Mio's new software is impressive and, considering the range of features, it's priced competitively. The maps look great and performance is equally good.

DIGITAL CAMCORDER



Canon HV30
Price: £700
Reviewed: November 2008
www.canon.co.uk
Web code: N/A
With fantastic picture quality, this camcorder is the one to buy if you're looking to make the most out of your HD television. It also has a great selection of manual controls and lets you edit your footage.

ALTERNATIVE

Panasonic HDC-SD9EB
£450 www.panasonic.co.uk Web code: N/A
Able to capture decent HD footage yet remaining light, portable and cheap, this Panasonic camcorder is a great buy for those on a budget.

DIGITAL CAMERA

Samsung NV24HD
Price: £249
Reviewed: October 2008
www.samsungcamera.com
Web code: N/A
With excellent build quality, a 10.2-megapixel CCD and wide-angle 24mm lens, this digital camera is perfect for taking detailed outdoor shots. It also features 720p movie recording, so you can capture video in high definition.



ALTERNATIVE

Pentax Optio A40
£219 www.pentax.co.uk Web code: N/A
This 12-megapixel compact camera houses some great features, not least of which is the excellent image stabiliser. It also shoots great photos.

PORTABLE MEDIA PLAYER



Apple iPod Nano
Price: £109
Reviewed: December 2008
www.apple.com/uk
Web code: N/A
Stylish and thinner than ever before, the new iPod Nano features motion sensors, allowing it to detect whether you're holding it in portrait or landscape mode, and a quick shake activates the shuffle mode.

ALTERNATIVE

Sony NWZ-A815
£89 www.sony.co.uk Web code: 2203060
It might lack some of the extra features found on rival players, but this Sony model excels in terms of audio quality and is easy to navigate.

MEDIA STREAMER

D-Link DSM-330
Price: £135
Reviewed: October 2008
www.dlink.co.uk
Web code: N/A
With its excellent usability and simple setup procedure, this device makes sharing your media collection simple. It features an HDMI port, can output 720p video and performs extremely well.



ALTERNATIVE

Archos TV+
£249 www.archos.co.uk Web code: 2210545
With a 250GB hard disk, this device not only streams media across a network, but can also store your entire video, music and photo collection locally.

LASER PRINTER



Brother HL-2170W
Price: £149
Reviewed: March 2008
www.brother.co.uk
Web code: 2207225
If you're looking for a good-quality monochrome laser printer for general home use, this Brother model is definitely worth considering. It's fast, compact and even has a wireless adapter. A bargain at this price.

ALTERNATIVE

Lexmark X500n
£301 www.lexmark.co.uk Web code: N/A
An amazingly good-value laser printer, considering it's not only colour but also includes a scanner, allowing you to scan, copy and print at speed.

PHOTO PRINTER

Canon Selphy CP750
Price: £110
Reviewed: October 2007
www.canon.co.uk
Web code: 2193769
It's a little bulky when in use, but this dedicated photo printer can produce high-quality prints in under 70 seconds. And a 2.4in display allows you to perform basic image editing before printing.



ALTERNATIVE

Sony DPP-FP90
£150 www.sony.co.uk Web code: 2196751
It's not particularly cheap to run, but this printer produces high-quality photos from a variety of sources and is reasonably fast as well.

MULTIFUNCTION PRINTER



Canon Pixma MP610
Price: £139
Reviewed: November 2008
www.canon.co.uk
Web code: N/A
Canon's compact and stylish MFD has a decent mix of top-notch quality and fast printing and can also print directly to DVDs. Running costs are relatively low, which is surprising given the low price tag.

ALTERNATIVE

HP Photosmart C8180
£298.45 www.hp.com/uk Web code: N/A
An expensive, but hugely impressive MFD, the Photosmart C8180 is packed full of useful features and is also incredibly easy to use.

NETWORK-ATTACHED STORAGE

Qnap TS-209
Price: £254
Reviewed: Christmas 2007
www.qnap.com
Web code: 2200223
If you're after a Nas device that does more than just share files over your network, this is it. You can schedule Bittorrent downloads, stream media to UPnP devices and install your own drives in it.



ALTERNATIVE

Acer Aspire Easystore
£499 www.acer.co.uk Web code: 2206105
This Nas device features 2TB of storage (other sizes are available), along with wireless, so you can place it anywhere in your home.

POWERLINE NETWORKING



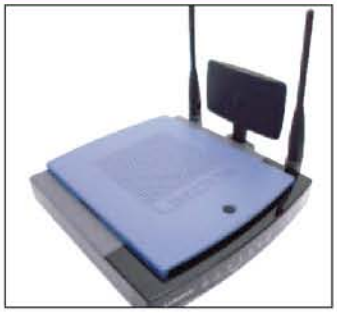
Solwise NET-PL-200AV Push
Price: £50
Reviewed: March 2008
www.solwise.co.uk
Web code: 2207035
You'll need at least two of these to get your powerline network running, but they're the best around. Based on the Homeplug AV standard, they're fast, resilient to electrical noise and great value for money.

ALTERNATIVE

Devolo Dlan 200 AV
£149 www.devolo.co.uk Web code: N/A
Small and well designed, these Devolo powerline devices use the Homeplug AV standard and have pre-programmed quality of service rules built in.

WIRELESS ROUTER

Linksys WAG325N
Price: £99.99
Reviewed: May 2008
www.linksys.com
Web code: N/A
It might look a little unconventional, but this Draft-N router from Linksys performs extremely well. It also features some sophisticated tools, has VPN support and allows the creation of virtual wireless networks.



ALTERNATIVE

Solwise Engenius Wireless-N Gigabit Router
£120 www.solwise.co.uk Web code: N/A
It might be a little pricey, but this router performed well in our tests and comes complete with some advanced network filtering tools.

EXTERNAL HARD DISK



CMS V2ABS-CE-120
Price: £175
Reviewed: Christmas 2007
www.cmsproducts.com
Web code: 2202396
A portable USB2 external hard disk that weighs a mere 150g and comes with built-in 256-bit AES encryption. Inside the case sits a 2.5in 120GB 5,400rpm Sata notebook hard disk.

ALTERNATIVE

Western Digital Mybook Studio
£204 www.westerndigital.com Web code: 2206075
This stylish 1TB external disk comes with USB2, Firewire 800/400 and eSata interfaces for ultimate flexibility.

INTERNAL HARD DISK

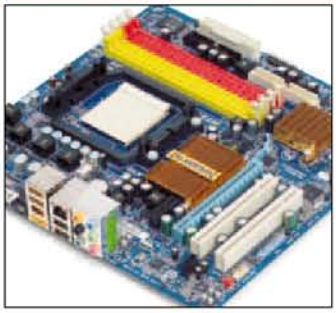
Western Digital WD10EACS
Price: £185
Reviewed: January 2008
www.westerndigital.com
Web code: 2203061
This disk features four 250GB platters to provide 1TB of storage. It includes some advanced technology such as Intelliseek, which calculates optimum seek speeds to lower noise, vibration and power usage.



ALTERNATIVE

Toshiba MK2035GSS
£79 www.toshiba.co.uk Web code: 2203064
Weighing just 98g, this 200GB 2.5in Sata hard disk is perfect for increasing the storage capacity of your notebook.

AMD MOTHERBOARD



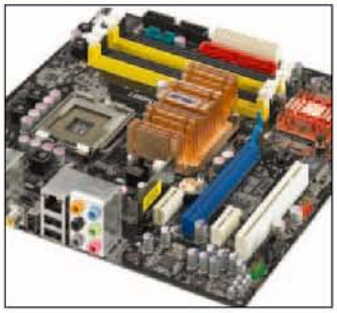
Gigabyte GA-MA78GM-S2H
Price: £60
Reviewed: June 2008
www.giga-byte.co.uk
Web code: N/A
With a wide range of ports, including eSata, and a good selection of options in the Bios, this is a great AMD board. Finally, after two years of losing to Intel, AMD's engineers have a winner on their hands.

ALTERNATIVE

EQS AB1S-RS690MKM
£46 www.eqscomputers.com Web code: 2204803
The cramped design limits upgrade potential, but it's a keenly priced AMD motherboard that features an on-board HDMI port for HD video.

INTEL MOTHERBOARD

Asus P5E-VM HDMI
Price: £81
Reviewed: June 2008
http://uk.asus.com
Web code: N/A
This board has a great range of features. With the integrated graphics enabled, we comfortably overclocked it to 3GHz with our 2.4GHz Core 2 Quad Q6600 attached, so enthusiasts should take note of its capabilities.



ALTERNATIVE

Gigabyte GA-G31MX-S2
£53 www.giga-byte.com Web code: 2202711
Considering the price, you get plenty of features on this Intel board, including Intel's G31 Express chipset and ICH7 Southbridge.

PC CASE



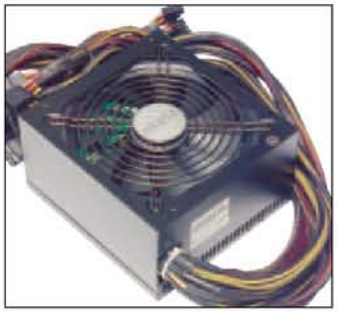
Zalman GS1000
£110.62
Reviewed: April 2009
www.quietpc.com
Web code: N/A
With superb build quality and design throughout, together with a very reasonable price tag, Zalman's GS1000 is an ideal case for the gamer or to build a workstation into.

ALTERNATIVE

Akasa Omega
£139.81 www.akasa.co.uk Web code: N/A
Excellent build quality and some interesting design features make this a great case for those who are often changing components.

POWER SUPPLY

Akasa Powermax 1000
Price: £135.11
Reviewed: March 2008
www.akasa.co.uk
Web code: 2207736
This 1,000W power supply has two +12V rails and its single 135mm dual-ball-bearing fan makes it a lot quieter than you would expect. It also comes with a variety of power connectors.



ALTERNATIVE

Enermax Galaxy 1000W
£233.83 www.enermax.com.tw Web code: 2164011
The 1,000W Enermax Galaxy power supply will suit those with SLI graphics and other power-sapping components, but it comes at a fairly high price.

OFFICE SUITE



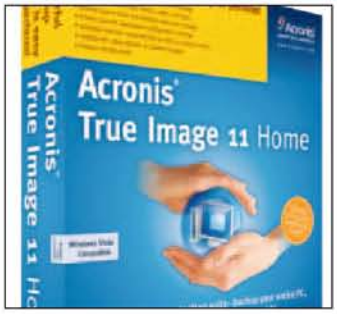
Microsoft Office 2007
Price: £357
Reviewed: May 2007
www.microsoft.com
Web code: 2183475
The new interface to Office is something you'll either like or loathe. We like it, but upgrading comes at a price, both in cash and in effort. Despite this, it's still the leader in office productivity software.

ALTERNATIVE

Corel Wordperfect X3
£276 www.corel.co.uk Web code: 2149856
This latest version of Corel's office suite includes tools such as PDF exporting, along with improved compatibility with other office applications.

SYSTEM UTILITY

Acronis True Image 11
Price: £39.99
Reviewed: April 2008
www.acronis.co.uk
Web code: 2208669
True Image 11 is an excellent backup and recovery solution that offers an unprecedented level of control over disk cloning, scheduled backups and secure file deletion. And, despite the range of features, it's easy to use.



ALTERNATIVE

Paragon Hard Disk Manager
£29.99 www.paragon-software.com Web code: 2205339
A comprehensive, all-in-one suite of hard-disk maintenance and backup tools that's easy to get to grips with and comes at a good price.

IMAGE EDITING



Adobe Photoshop Elements 7
Price: £76.38
Reviewed: December 2008
www.adobe.co.uk
Web code: N/A
Some of its advanced tools and special effects might not be required by most amateur photographers, but Adobe Photoshop Elements remains the standard that rival image editors must compete against.

ALTERNATIVE

Corel Paint Shop Pro X2
£79 www.corel.com Web code: N/A
A little more expensive than its main rival, Photoshop Elements, but Paint Shop Pro X2 excels in terms of ease of use.

VIDEO EDITING

Adobe Premiere Elements 7
Price: £74.75
Reviewed: March 2009
www.adobe.co.uk
Web code: N/A
With an unbeatable combination of fun and easy-to-use features, including support for HD cameras and Blu-ray burning, together with accessible professional tools, this is an ideal tool for users at all levels.



ALTERNATIVE

Muvee Reveal
£53 www.muvee.com Web code: N/A
If you're more interested in simply getting good results than in opportunities to tinker, this is an ideal package for home video editing.

PC SECURITY



Bitdefender Total Security 2009
Price: £44.95
Reviewed: January 2009
www.bitdefender.com
Web code: N/A
A comprehensive suite that's easy to use, and has fast scan times and low system overheads. With extra tools including backup and parental controls, this is a good all-rounder.

ALTERNATIVE

Kaspersky Internet Security 2009
£39.99 www.kaspersky.com Web code: N/A
An excellent security suite with top-class anti-virus protection and one-click problem solving.

WEB DESIGN

Adobe Dreamweaver CS3
Price: £393
Reviewed: July 2007
www.adobe.com
Web code: 2186591
Powerful HTML coding and design tools along with CSS templates and Ajax widgets will help non-programmers get started. There's also a big emphasis on CSS, including a CSS Advisor tool for newcomers.



ALTERNATIVE

Microsoft Expression Web
£260 www.microsoft.com Web code: 2185242
Expression Web is a very good web-editing suite if you accept the inevitable Microsoft bias, and features CSS support and a powerful interface.

BUSINESS PC



Dell Latitude D531
Price: £586
Reviewed: October 2007
www.dell.com
Web code: N/A
With a dual-core AMD Turion processor clocked at 1.8GHz, 2GB of Ram and Vista Business, this is a good budget model. It also features a built-in DVD writer, 120GB Sata hard disk and both Wifi and Bluetooth.

ALTERNATIVE

HP Compaq dc7800
£598 www.hp.co.uk Web code: 2207533
The space-saving design of this affordable business desktop is very compelling and it can attach directly to an optional HP TFT screen.

BUSINESS PRINTER

HP Laserjet P1505n
Price: £205.63
Reviewed: June 2008
www.hp.com
Web code: N/A
Compact, stylish and quicker than it looks, this Laserjet from HP is a very capable small-business printer and is stunningly good value to boot. It also features an integrated network interface.



ALTERNATIVE

Zebra P100i
£1,245.50 www.zebracard.com Web code: 2212221
A great device for small businesses needing to print plastic cards in volume. It takes up little desk space and can print in full colour.

NETWORK SECURITY



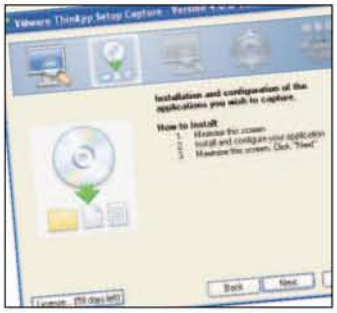
Smoothwall Smoothguard 1000-UTM
Price: £3,231.25
Reviewed: September 2007
www.smoothwall.net
Web code: 2194393
A comprehensive array of security tools, load balancing and failover facilities, plus extensive reporting options, mean this network security device justifies the high price.

ALTERNATIVE

Webroot Antispyware Corporate
£22.56 www.webroot.com Web code: N/A
This is the per-seat price for a one-year licence, which is great value. It also covers two key client security bases in one go.

NETWORK MANAGEMENT

VMWare Thinapp 4.0
Price: £2,937.50
Reviewed: November 2008
www.vmware.com
Web code: N/A
Although its cost may be an issue for small businesses, Thinapp overcomes many of the issues associated with deploying and managing applications. It features on-demand streaming, USB key deployment and more.



ALTERNATIVE

Prefix IT PrefixNE
Up to £2.94 per PC per month www.prefixit.com Web code: 2205651
Easy to install and use, this network management application allows you to keep track of all the kit on your network and is perfect for small businesses.

COLLABORATION SOFTWARE



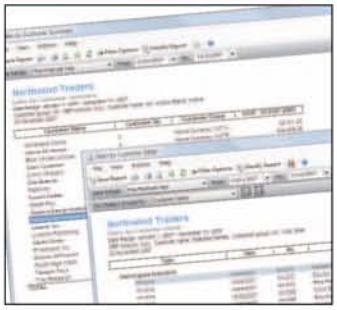
Nuance PDF Converter Professional 5
Price: £99
Reviewed: June 2008
www.nuance.co.uk
Web code: N/A
It may often take second billing to Adobe Acrobat, but this latest release is cheaper and just as good – if not better. The only problem is there are so many new tools to learn.

ALTERNATIVE

C2C Archive One Policy Manager
£40 www.c2c.com Web code: 2212370
This is a well-conceived and easy-to-implement exchange storage management tool that can enhance performance and even reduce costs.

BUSINESS ACCOUNTS SOFTWARE

Microsoft Accounting 2008
Price: £149
Reviewed: February 2008
www.samsung.co.uk
Web code: 2207529
A late entrant to the UK accounting market, Office Accounting 2008 is easy to use, feature-rich and will shake up the competition. It also offers in-depth integration with Outlook 2007 Business Contact Manager.



ALTERNATIVE

Intuit Quickbooks Pro 2008
£299 www.quickbooks.co.uk Web code: 2203178
A sensible update to what is one of the most accessible and easy-to-master small-business accounting packages around. Syncs with Outlook.

Personal Computer World

How we test

Performance testing is an important part of *PCW*'s reviewing process, and to obtain our authoritative results we use the UK's best PC testing resource. Here we explain why you can trust our results and give you a tour of our most frequently used benchmark programs

At the core of our PC performance tests are industry-standard benchmarks from Bapco and Futuremark. Sysmark 2007 Preview is the latest Vista-compatible version in a long line of Bapco benchmarks and it allows us, for the first time, to compare the application performance of Windows XP and Windows Vista-based systems with the same benchmark. It tests real-world application performance by running a series of scripts to mimic authentic user tasks. It loads and runs full versions of 14 market-leading applications, which are:

- Adobe After Effects 7
- Adobe Illustrator CS2
- Sketchup 5
- Adobe Photoshop CS2
- Autodesk 3ds Max 8
- Sony Vegas 7
- Macromedia Flash 8
- Microsoft Excel 2003
- Winzip 10
- Microsoft Outlook 2003
- Microsoft Powerpoint 2003
- Microsoft Word 2003
- Microsoft Project 2003
- Microsoft Windows Media Encoder 9 series

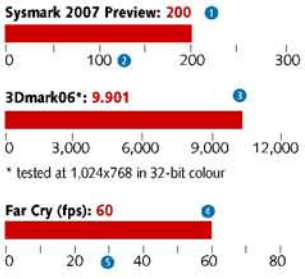
Note that scores from Sysmark 2007 Preview are not comparable to scores from previous versions of Sysmark. All scores are relative to the Sysmark reference machine, which scores 100 (see below for details).

In *PCW*'s labs, our staff have over 20 years of combined testing experience. We know all the perils and pitfalls of practical benchmarking, and we contribute to the development of industry-standard benchmarks through our full membership of Bapco (**www.bapco.com**), the non-profit benchmark consortium. Listed below are the main benchmarks we use for testing PC systems and components.

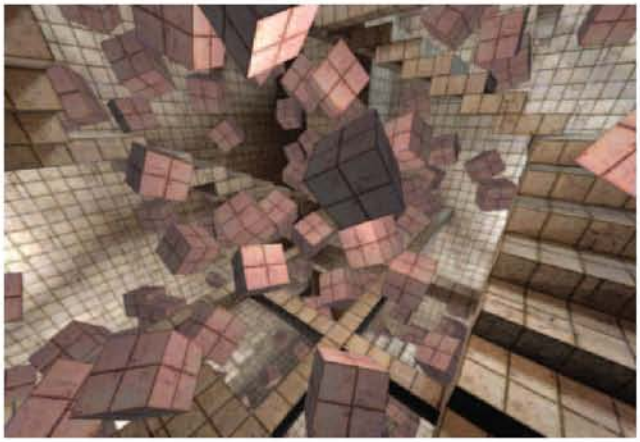
- Bapco Sysmark 2007 Preview – an application-based benchmark that tests real-world system performance.
- Futuremark 3Dmark06 – the latest version of 3Dmark that tests DirectX 3D graphics performance.
- Games – we use built-in benchmarks in Far Cry and Fear to see how graphics cards perform in a real-world games.
- Futuremark PCmark05 – a synthetic benchmark used to test the performance of a PC's major subsystems.
- Test beds – we use standardised AMD and Intel-based test rigs to test components and peripherals.

There's more information about our testing procedures and benchmarks on our Labs site at **www.reportlabs.com/testbed/bguides/benchmarks.php**.

Performance



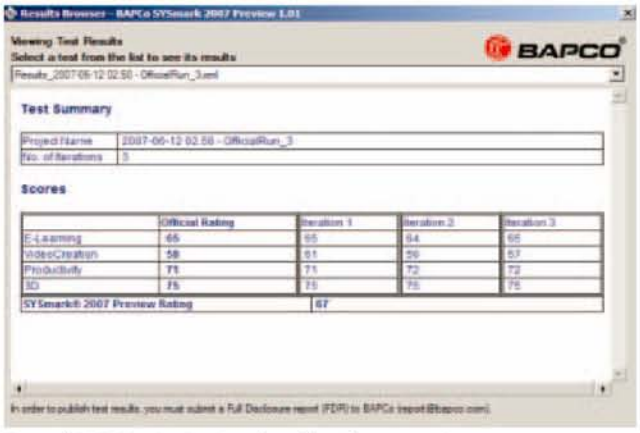
1. A score of 200 indicates that the system is twice as fast as the reference PC.
2. The reference PC (Intel Core 2 Duo E6300 1.8GHz, 1GB Ram) scores 100.
3. An Nvidia Geforce 8600GT would score in the region of 9,900.
4. Fear: A score of 60fps (frames per second) or higher is most desirable.
5. A result of 30fps or above means the machine can produce playable frame rates at the tested resolution.



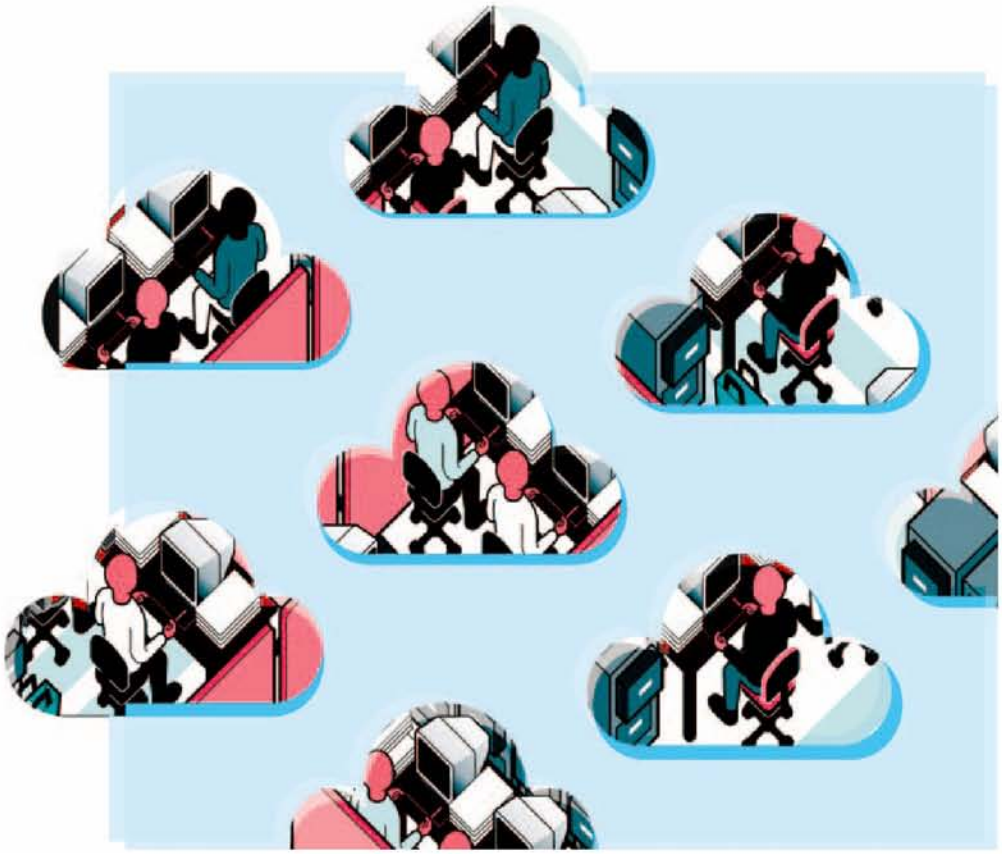
PCmark05 measures memory, processor, graphics and hard drive performance



3Dmark06 is used to test 3D graphics performance



Sysmark 2007 Preview tests real-world performance using common apps



ON TEST

92 Ajax Windows
93 Edesk Online
94 Glide
95 Google Docs
96 Peepel
97 Thinkfree
98 Zoho Personal

99 Table of features
100 Your own online office
Editor's Choice

'In theory, you don't need to install and maintain any software on your PC and can access files from anywhere in the world via the internet'

Taking your office online

Can online office applications really take the place of desktop office suites? Tim Nott puts seven of them to the test

For those who need to use the standard trio of word processor, spreadsheet and presentation software, there's a fair degree of choice. Apart from the inevitable Microsoft Office, there are inexpensive alternatives, such as Ability Office and the free but powerful suite from Openoffice.org.

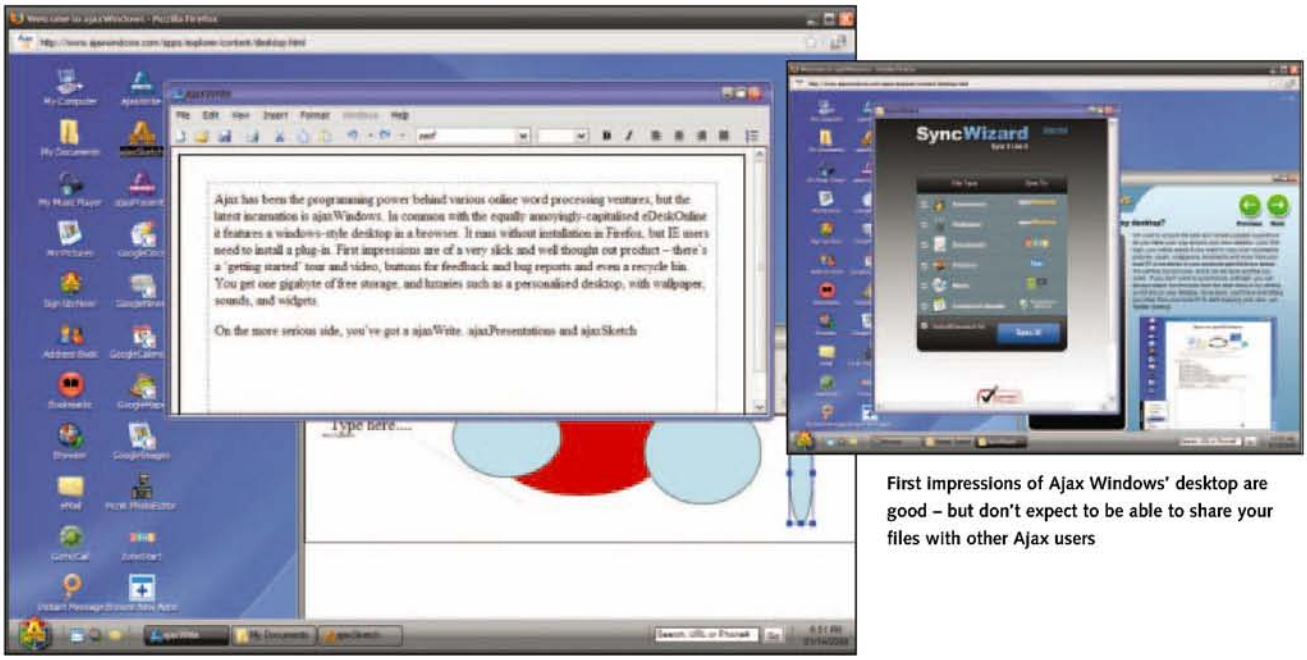
There is, however, another approach, which is to create, edit and store documents, worksheets and presentations online. The advantages are manifold. In theory, you don't need to install and maintain any office software on your PC. Second, with your documents stored online, you can access them from any computer with an internet connection anywhere in the world. Third, you can invite colleagues or friends to share your files. And finally you can do all this at little or no cost – all the suites here have free versions, though you can upgrade to more storage or more features for a subscription.

There are disadvantages, too. If the server storing your data goes down, either because of technical or business problems, then your files go with it. Obviously you also need an internet connection, which may not be available if you're travelling. You'll also find that online suites lack many of the features of the traditional offline heavyweights.

Most of these problems can be overcome, however, and in this group test we look at seven competitors for your online office needs.

Ajax Windows

Price Free **Contact** www.ajaxwindows.com



First impressions of Ajax Windows' desktop are good – but don't expect to be able to share your files with other Ajax users

Ajax has been the programming power behind various online word processing ventures, but the latest incarnation is Ajax Windows. In common with Edesk Online it features a Windows-style desktop in a browser. It runs without installation in Firefox, but IE users need to install a plug-in.

First impressions are of a well thought-out product – there's a 'getting started' tour and video, buttons for feedback and bug reports and even a recycle bin. You get 1GB of free storage, and luxuries such as a personalised desktop. On the more serious side, you've got Ajax Write, Ajax Presentations and Ajax Sketch.

The word processor, Ajax Write, is a little more sophisticated than Windows Wordpad. It doesn't appear to have a spell checker though it does have tables, numbered and bulleted lists and you can insert in-line images. Despite the claimed ability to handle Microsoft DOC and Open Office ODT files, we found it was unable to open its own sample files in these formats, producing an apologetic error message about incompatibility. We also found new documents sometimes started with a string of gibberish, and that Ajax Write would often refuse to take any keyboard input – something of a handicap in word processing.

Ajax Sketch is a simple vector graphics program, with similar capabilities to the Microsoft Office drawing toolbar but without Wordart or gradient fills. For reasons we couldn't fathom we could only place shapes in the top third of the window, and since the help, as with Write, produced an empty window, we gave up.

On to the spreadsheet – except there isn't one – but you do get desktop icons for Google Docs and Zoho. Each of these icons opened a new browser window for the respective sites, where we able to sign in as normal. Ajax Presentations is again unlikely to win any awards, but it has the basics for creating and ordering slides, with a pane for speaker's notes. We found, however, that it suffered similar problems to Writer – a new file would sometimes start with strange code in the slide window, the program refused to take any input and we were unable to import a Powerpoint file.

Other icons also open new browser windows, with webmail, instant messaging, and Voice over IP via Gizmocall, for which you will need to buy credits. There are links to Googlemaps and Googlenews, and another icon takes you to **www.picnik.com**, where you can upload your photos and tweak them online. This last feature is rather good but, like the Zoho and Google links, is in no way integrated into the Ajax Windows environment.

There's more in the start menu, but this again posed difficulties, as it tended to close before we could select an item. We did manage to start the Whoopee Cushion widget, which in retrospect was probably the most satisfying part of the Ajax Windows experience.

When you sign up, you are subscribed to two other services – Schedule World and Box – and this is where the Ajax Windows Syncwizard comes in. Your IE favourites, Firefox bookmarks or Opera bookmarks are uploaded to Ajax Windows, as is your Windows wallpaper, so you can access these from any computer. Your data, however, gets uploaded elsewhere, with pictures going to Box, contacts to Schedule World and documents to Zoho. Having opted out of the last three, we were somewhat surprised to see we had unwittingly uploaded a random selection of files and folders from 'My Documents' on our own PC. Finally, Ajax Windows doesn't offer any means of sharing files with other Ajax users.

Verdict

Pros Ambitious, with an attractive desktop

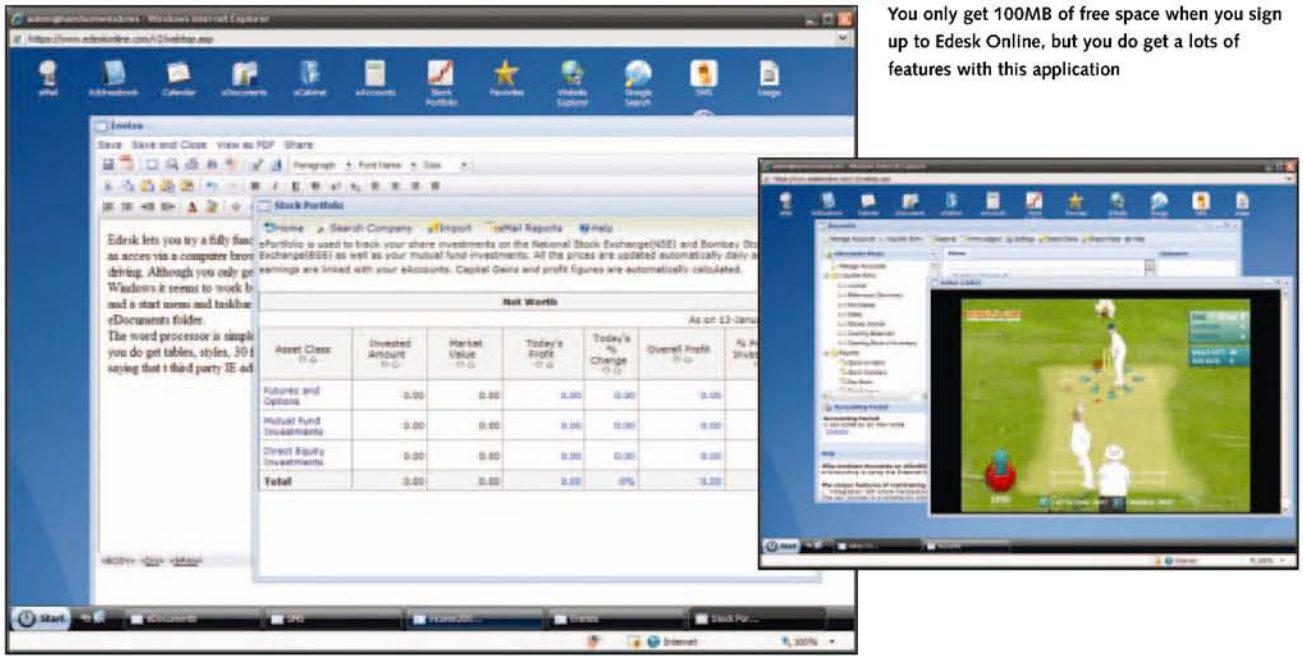
Cons Very little of it actually works, and that which does is either extremely limited or external

Overall One to be avoided, at the moment

Features	★★☆☆☆
Ease of use	★☆☆☆☆
Overall	★☆☆☆☆

Edesk Online

Price Free **Contact** www.edeskonline.com



You only get 100MB of free space when you sign up to Edesk Online, but you do get a lots of features with this application

Edesk lets you try a fully functional demo before you sign up, but the latter just involves choosing a username and providing an existing email address.

As well as access via a computer browser you can also view files on a GPRS phone, and the site boasts that you can 'keep working in the car'. Not, we hope, while driving. Although you only get 100MB of free space, you do get a lot of everything else. The Edesk Webtop is like an operating system in its own right. It hides the browser toolbars and menus (you may have to enable the advanced Javascript settings in Firefox) and gives a full-screen window with a set of icons along the top, and a start menu and taskbar along the bottom. In short, it works just like Windows, with multiple, resizeable application windows inside the main browser environment.

The main icons cover mail, addresses and contacts; an Ecabinet (which is a general-purpose store for personal records); an FTP client; an SMS client for sending messages to mobile phones (in India only at time of writing and not free); Google search and a Favourites folder; a powerful-looking accounting package; and for those trading on the Indian National or Mumbai stock exchanges, a portfolio tracker.

Finally, there's the Edocuments folder which is the manager for uploading, downloading and storing your online files. The Start menu adds a couple of games to the mix – Sudoku and Ashes Cricket. Oddly, there are no icons or menu items for the word processor or spreadsheet, but you can get at these from the Edocuments folder.

The word processor is simple, with three rows of self-evident buttons, but no menus. You get tables, styles, 30 fonts, and the facility to insert images, media or Flash animations. The spelling checker failed to work, with an error message saying that a third-party IE add-in was needed. Although sharing a stored document is a one-click process, the URL that this returned didn't work either. The question of file formats remained unresolved, as we were unable to edit any uploaded Word or Open Office document – we had to resort to copying and pasting from an offline word processor into the Edesk one. Also there is no 'Save As' or 'Export' facility from within the word processor – you have to do this from the Edocuments folder. You can, however, save an open document to your hard disk as a PDF.

The spreadsheet bears the legend 'powered by Zoho', and seems functionally identical to the one hosted at Zoho, but unlike the latter it didn't appear to support macros or pivot tables. It did, however open uploaded Excel – but not Open Office – spreadsheets.

There is no presentation software with Edesk, but that may not bother a lot of people, and as we stated earlier there's plenty of other stuff. The Usage icon shows exactly how much of your allocated space you are using, along with a price list of storage upgrades.

Another feature we liked was the import/export from the start menu. If you've set up the email side of Edesk you can import address books and emails from your own computer. The export feature impressed us more. Two clicks create a zipfile of all your Edocuments and downloads it to your own computer. Finally, the online help is in the form of a wiki, which frankly didn't help us with the problems we encountered.

Verdict

Pros A very ambitious offering with a slick Windows-like interface

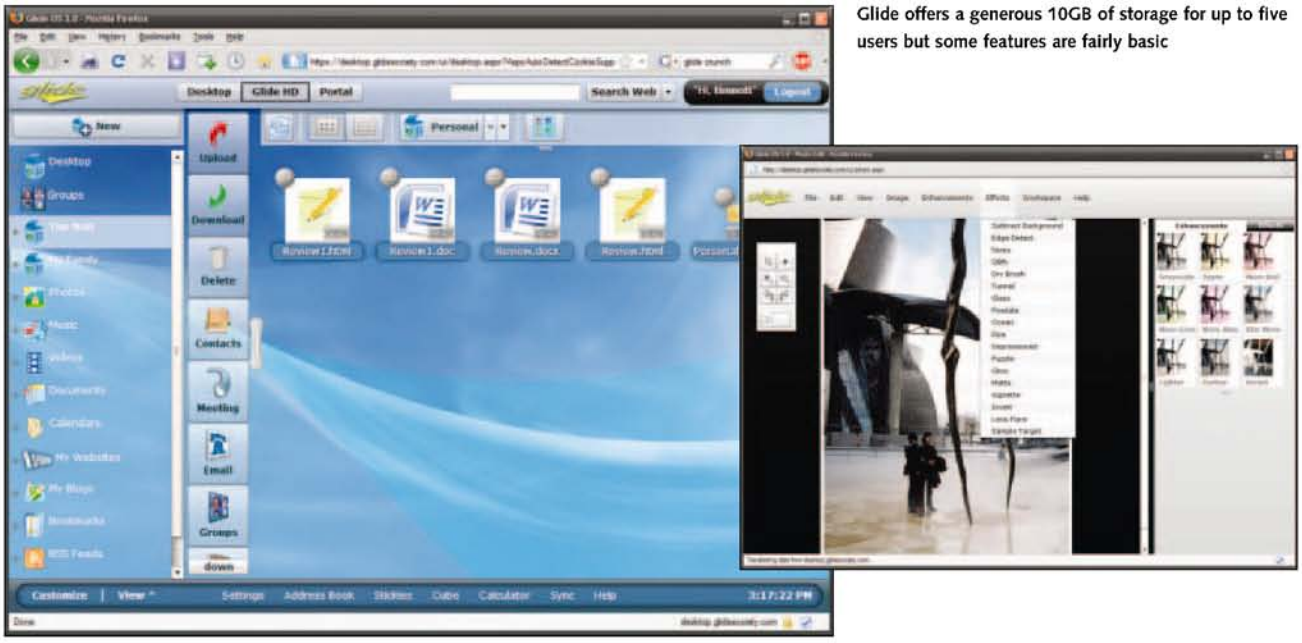
Cons Not everything works, to put it kindly

Overall The unfinished aspect puts us off using it for serious work, but it's definitely one to watch

Features	★★★☆☆
Ease of use	★★☆☆☆
Overall	★★☆☆☆

Glide

Price Free **Contact** www.glideos.com



Glide offers a generous 10GB of storage for up to five users but some features are fairly basic

Sign up to Glide, and you get a generous 10GB of free storage for up to five users. If you want more, you can pay, and there's an optional free email account, Glide is not so much an office suite as an in-browser operating system with a start menu, desktop icons, a taskbar and the familiar window furniture.

Three buttons at the top of the screen switch between the Desktop, your Glide HD, which stores the files you've created or uploaded, and a portal to other websites. There's a lot here – we'll return to the main office apps, but you get mail, an address book, searches on your Glide HD and the web, sticky notes, a calculator, a photo editor, blogging, website creation, and the Cube. This last is a 'social' media player giving you access to your own uploaded music, videos and pictures as well as those shared by other users. We found our cube populated with music ranging from Duran Duran to Metallica, so be warned. Glide has an interesting spin on the context menu – instead of right-clicking, you click on the 'Go' button at the top left of a file icon. This produces the 'Glide Bubble' which looks like a pie chart with various options, such as View, Edit, About, and another central Go button to drill down to further options.

Despite the desktop interface, Glide does like to spread itself around and if you click on the Writer icon, you'll open a new browser instance. Although you can upload any kind of file to Glide, Writer is fussy about what it can open – we were only able to open HTML files. We could, however export files from writer as DOC, DOCX, RTF and PDF. Writer isn't that exciting. You get 20 fonts, but no styles, spellchecking in English, French and German and links to look up selected words in the Merriam Webster online dictionary and thesaurus – again these opened in a new browser instance. You can insert pictures, but only in-line with text, unless you fiddle around with tables. There's also an air of unfinished business with a 'Themes' button that just produces a 'Coming soon' message.

Clicking on the snappily named 'Crunch' button to open the spreadsheet produces a message that you need to access it from the Glide Sync application. The latter needs to be downloaded, and once installed can be used to synchronise your online files and Glide desktop with files on your hard disk. You also get Crunch, which installs on your hard disk as a normal app. Having done that, we found that Crunch (admittedly a beta version) is again fairly basic. We couldn't find any charting functions and only 41 functions, with several categories again producing a 'Coming soon' message. There was a button for pivot tables, but due to the absence of a help file we didn't get to grips with this. When saving a spreadsheet we were only offered the .gcr format, with export limited to PDF or HTML. The lack of Excel or even CSV formats means we can't really take Crunch seriously in its present state.

Back online, Presenter won't open Powerpoint files, but will export them. First impressions were that despite a Beta tag, it was rather better equipped than its team mates. There is a reasonable selection of templates and themes, and a nifty pop-up formatting bar for use when editing text.

Finally, we should mention the photo editor. It supported all the formats we tried, lets you crop photos, remove red-eye, and apply all sorts of enhancements – such as sharpening and equalising – and a bunch of special effects.

Verdict

Pros Imaginative desktop interface; lots of apps; lots of storage

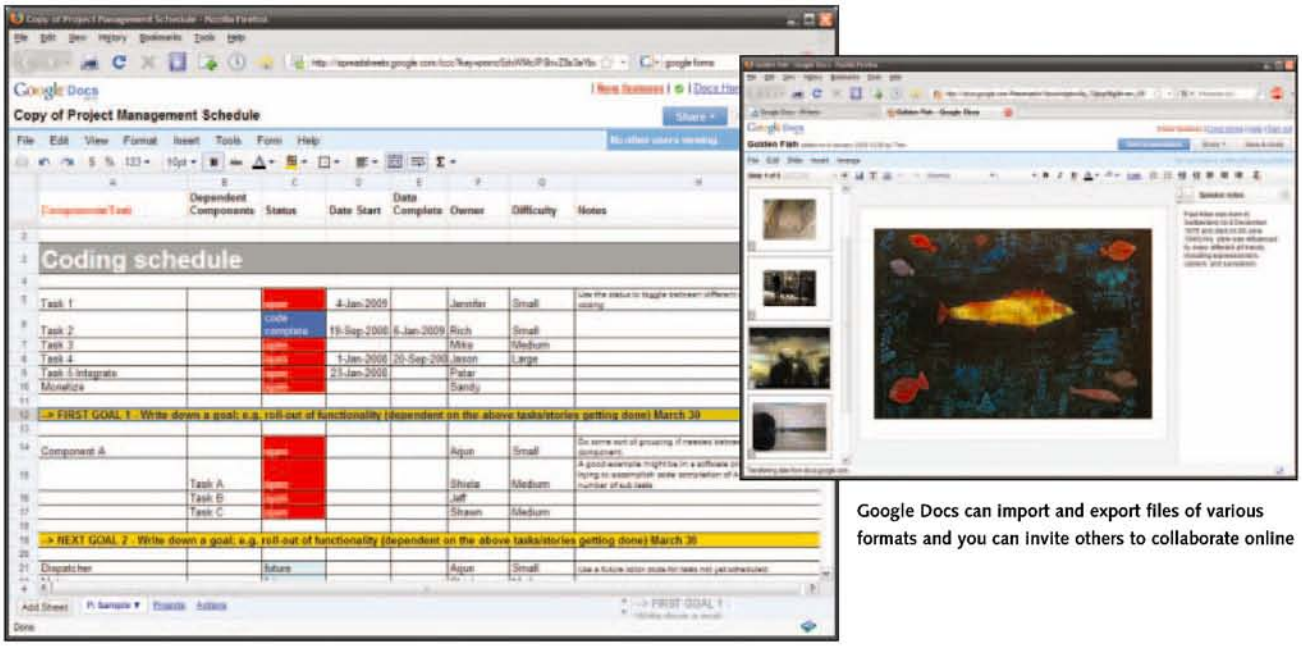
Cons Proliferates browser windows; limited file compatibility; spreadsheet not online

Overall Not really ready for serious work, but worth a look and worth keeping an eye on

Features	★★★☆☆
Ease of use	★★☆☆☆
Overall	★★☆☆☆

Google Docs

Price Free **Contact** http://docs.google.com



Google Docs can import and export files of various formats and you can invite others to collaborate online

In 2005 a four-person start-up with the engaging name of Upstartle created Writely, a web-based online word processor. Six months later the company was snapped up by Google, and three months after that Google announced the addition of a spreadsheet to form 'Google Docs and Spreadsheets'. In 2007, presentation software was added and the name was truncated to Google Docs, and last year Google Forms was added.

You don't need a Gmail account to join Google Docs, but if you have one, then you're automatically signed up and ready to start creating new files or uploading existing ones. Google Docs can import and export files in Open Office and Microsoft Office 97-2003 formats and will export to Acrobat PDF. To call Google's storage limitations labyrinthine would be an understatement, but to summarise, individual documents are limited to 500KB, with embedded images of 2MB each. You have a combined limit of 5,000 documents and presentations, 1,000 spreadsheets and 5,000 images. Once you've got files online, you can invite others to collaborate. Up to 10 people can work on the same file, with revision marks showing who has changed what. You can also issue read-only invitations. The main file manager window integrates with Gmail, Picasa web photos and Google calendar, though these are separate sign-ups.

In the word processor you have 11 fonts and seven built-in styles at your disposal. Although you can't do columns of text you can create tables, indents and numbered or bulleted lists. You can insert footnotes, bookmarks and comments, there's a good range of templates available online and we counted 35 spelling languages. One interesting feature is that you can start a new document when you're not logged in by sending an email to a special address at your Google account.

The spreadsheet is more impressive – you get 250 functions, 22 chart types and up to 256 columns, 200,000 cells or 100 sheets (whichever limit is reached first) in which to deploy them. Being used to traditional spreadsheets we were baffled at first by the lack of a formula bar at the top of the screen. All editing, in fact, takes place in-cell, which is more convenient, but there's an option for a view-only formula bar, or you can double-click in a cell to see formulae rather than results. Again there are many templates available.

The presentation software is basic – there are no transition effects and no sound. You can, however, insert video clips into a presentation directly from Google-owned Youtube. According to the tip in the Insert Image box, you can also drag images from other web pages directly into a slide. However, we found this doesn't work with sites such as Flickr or Picasa where you may have stored images. Dragging these onto a slide takes you away from the presentation you are working on, so you need to copy and paste the image URL.

Google forms let you send out forms by email with questions that can be answered from a list, multiple-choice checkboxes or free text. When replies come in these are inserted into a spreadsheet for analysis.

Google Gears adds offline capabilities, and is available as a plug-in for Internet Explorer, Firefox and Google Chrome on the PC as well as Macintosh and Linux browsers. Install this and next time you visit **docs.google.com** you'll be able to download your online files to the local computer. Offline access is limited, however, as you can only edit – and synch the next time you are online – text documents. Spreadsheets and presentations can be viewed, but not changed.

Verdict

Pros Good collaboration; simple to use; lots of storage

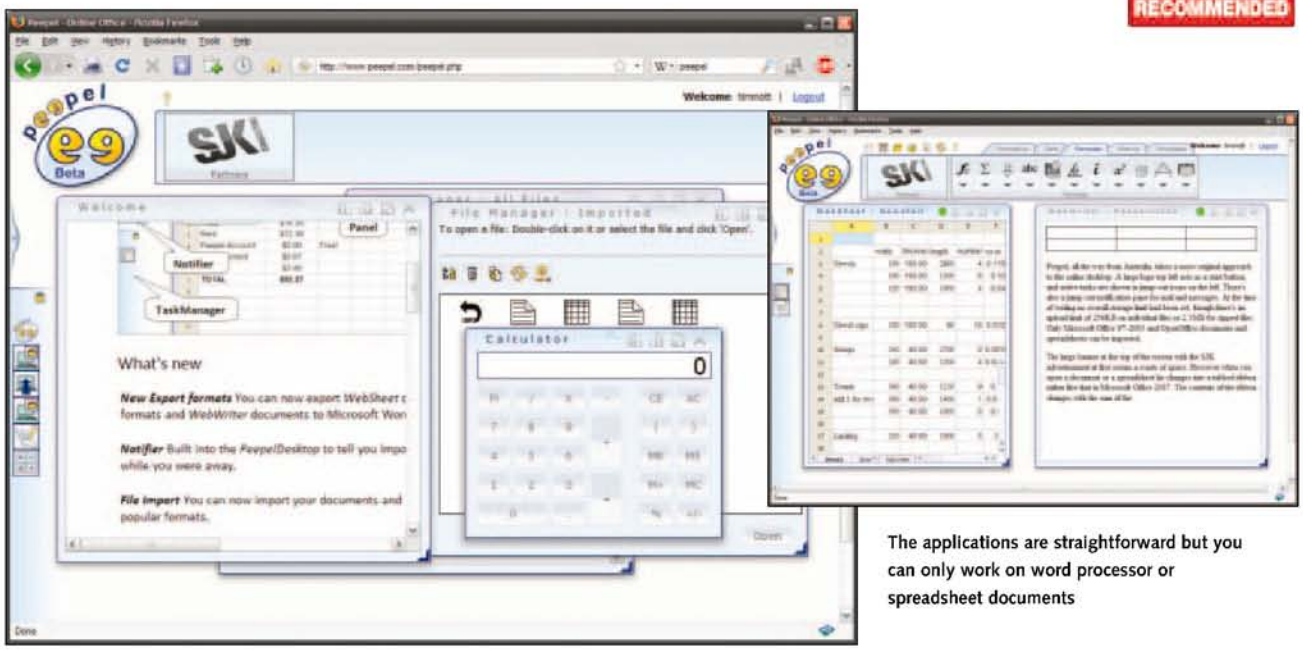
Cons Offline capabilities limited; presentations low on features

Overall Not the most elegant package, but it bears the Google name

Features	★★☆☆☆
Ease of use	★★★★☆
Overall	★★★☆☆

Peepel

Price Free **Contact** www.peepel.com



The applications are straightforward but you can only work on word processor or spreadsheet documents

Peepel, from Australia, takes a more original approach to the online desktop. A large logo top left acts as a start button, and active tasks are shown as buttons on the left. As you mouse over these the buttons expand and the corresponding window comes to the fore for viewing – clicking on the button makes that window active. There's also a jump-out pane for notifications and messages from other Peepel users. At the time of writing no overall storage limit had been set, though there's an upload limit of 256KB on individual files or 2.3MB for zipped files. Microsoft Office 97-2003 and Open Office documents and spreadsheets can be imported. By default the file manager has sub-folders for imported and shared files, but you can create new folders.

The large banner at the top of the screen with the SJK advertisement at first seems a waste of space. However, when you open a document or a spreadsheet this changes into a tabbed ribbon rather like that in Microsoft Office 2007. The contents of this change to suit the active window, and you can have more than one spreadsheet or document open at once.

Despite the ribbon, the word processor is fairly simple. English seems to be the only spelling language and there are just seven fonts. The table feature is good, with handles to change the size of rows and columns. There are dedicated tools for inserting hyperlinks, email addresses and images, though it only seems possible to place these 'in line' so you can't wrap text around them, but you can drag them in from other web pages.

The spreadsheet is also simple, with no charting, and tabs to switch between text formatting, number formatting, functions and templates – though at the time of writing the last only included a very simple budgeting sheet. The 165 built-in formulae are grouped by type: logical, text, date, statistical and so on, with a dedicated autosum button. Given its Australian pedigree it's perhaps unsurprising that in currency formatting you have Australian dollars, British pounds, euro, yen and Chinese yuan.

To share a spreadsheet or document with other Peepel users, you turn to the sharing tab on the ribbon and add their email address. You can either give them read-only or write privileges. When you're editing a shared document, a dot on the title bar turns red when you don't have control and green when you do. Although we couldn't find a way to download files from the file manager, it turned out that the word processor and spreadsheet ribbons have buttons for this – again, you can export in Microsoft Office 97-2003 and Open Office formats.

There's no presentation software, but there is a calculator, should your operating system inexplicably lack one and, strange as it may seem, a web browser to use inside your Peepel desktop. Help is excellent, with online 'Quick Help' and a more detailed 51-page PDF available for download.

There are some clever touches, such as the 'half maximise' button that neatly sizes a window to the left or right of the browser. The Workspace Manager is also a smart feature – you can save all your open windows and applications for re-use in another session, so you can return to your desktop exactly as you left it. Should you wish, you can save multiple desktops for different sets of tasks. If you want to keep up to date with changes to shared files and messages from other users without logging in to Peepel, then you can subscribe to a RSS feed.

Verdict

Pros An innovative interface and very easy to use

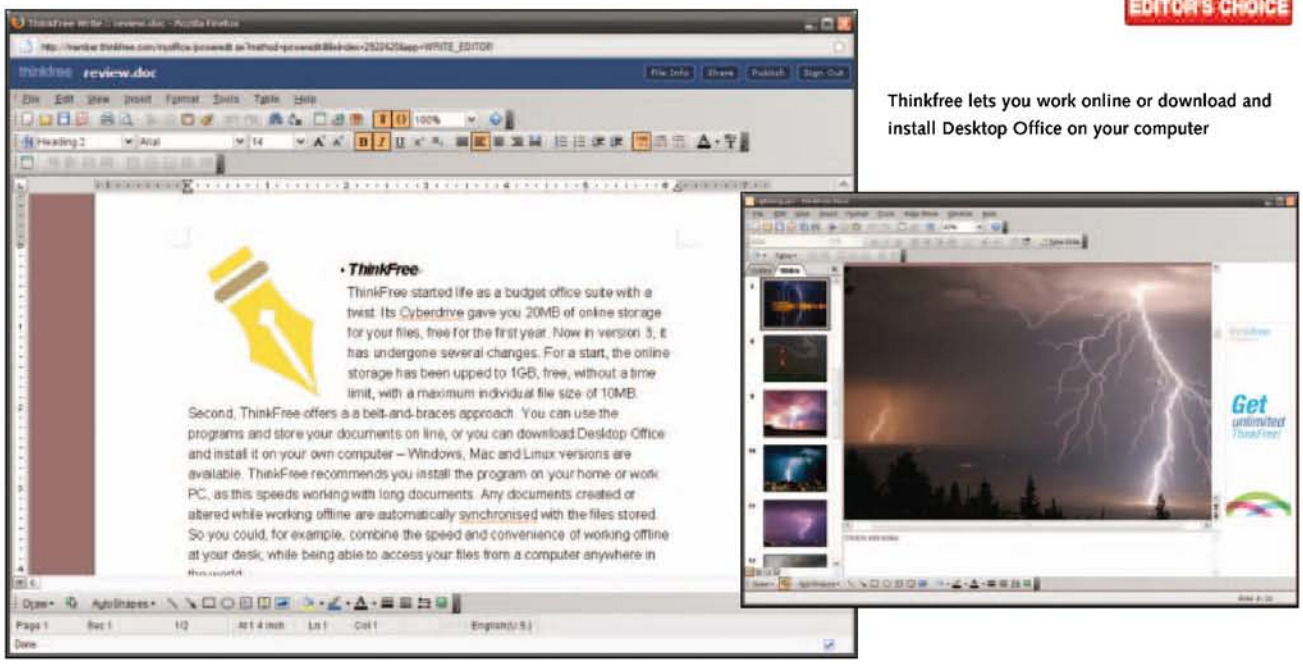
Cons Only word processing and spreadsheets, and these are limited

Overall Despite the limitations this is an appealing and well-designed package

Features	★★☆☆☆
Ease of use	★★★★☆
Overall	★★★☆☆

Thinkfree

Price Free **Contact** www.thinkfree.com



Thinkfree lets you work online or download and install Desktop Office on your computer

Thinkfree started life as a budget office suite, but when we group-tested it back in 2004 it had a unique twist. Its Cyberdrive gave you 20MB of online storage for your files, free for the first year. Now in version 3, it has undergone several changes. For a start, the online storage has been upped to 1GB, free, without a time limit, and with a maximum individual file size of 10MB. Second, Thinkfree offers a belt-and-braces approach. You can use the programs and store your documents online, and you can download Desktop Office and install it on your own computer – Windows, Mac and Linux versions are available.

Thinkfree recommends you install the program on your home or work PC, as this speeds up working with long documents. Any documents created or altered while working offline are automatically synchronised with the online files when you next connect. So you could, for example, combine the speed and convenience of working offline at your desk, while being able to access your files from a computer anywhere in the world. If you are at your own PC you can upload files to your Thinkfree Office space or – even more simply – open files on your own PC then edit and save them online.

Thinkfree is written in Java, so not only will you need to have the latter installed, but to work online you'll find it needs to download code to the Java Virtual Machine on the host computer in order to run each module for the first time. The suite consists of Write, Calc, and Show, whose functions should be evident, plus Note.

As the screenshots above show, the interface is uncannily like pre-2007 Microsoft Office with similar menus and toolbars. File compatibility does extend to Office 2007, however and you can also save to PDF.

Write gives you 10 spelling languages, with check-as-you-type underlines and autocorrect, but there's no grammar checking. You have most of the modern word processing comforts, such as formatting styles, fields, bookmarks, text boxes, tables and drawing tools. You don't get autotext or macros, but you can use all the fonts installed on your computer.

Calc, the spreadsheet, isn't going to challenge Excel for high-end number-crunching, but does provide tabbed worksheets, 70 chart types, autofill of series and over 300 functions. Show, again, is very like Powerpoint in look and feel – unlike earlier versions it has the latter's three-way split showing slide thumbnails, the current slide and speaker's notes. The modestly named Note – in beta at the time of writing – is a dedicated blogging tool, with templates ranging from book reviews to lecture notes and the facility to post directly to a blog site.

Overall there are plenty of online resources such as clipart and templates, and a clever touch is the way the browser toolbar and menus are automatically hidden when editing. Another feature in beta at the time of writing was the Workspace. You can create projects consisting of up to 100MB of files to share with colleagues or friends, with various permission levels assigned to team members by the project owner. Members automatically receive an email when content is updated. We found that working online could be slow – particularly when opening large files – but this seems to be the norm for all online apps, and perhaps was made more noticeable by the contrast with the offline performance. Also, when working online, you can only open one file at a time in each of the applications, but this limitation doesn't apply to the offline version.

Verdict

Pros Microsoft Office lookalike that can be used on or offline and synchronises automatically

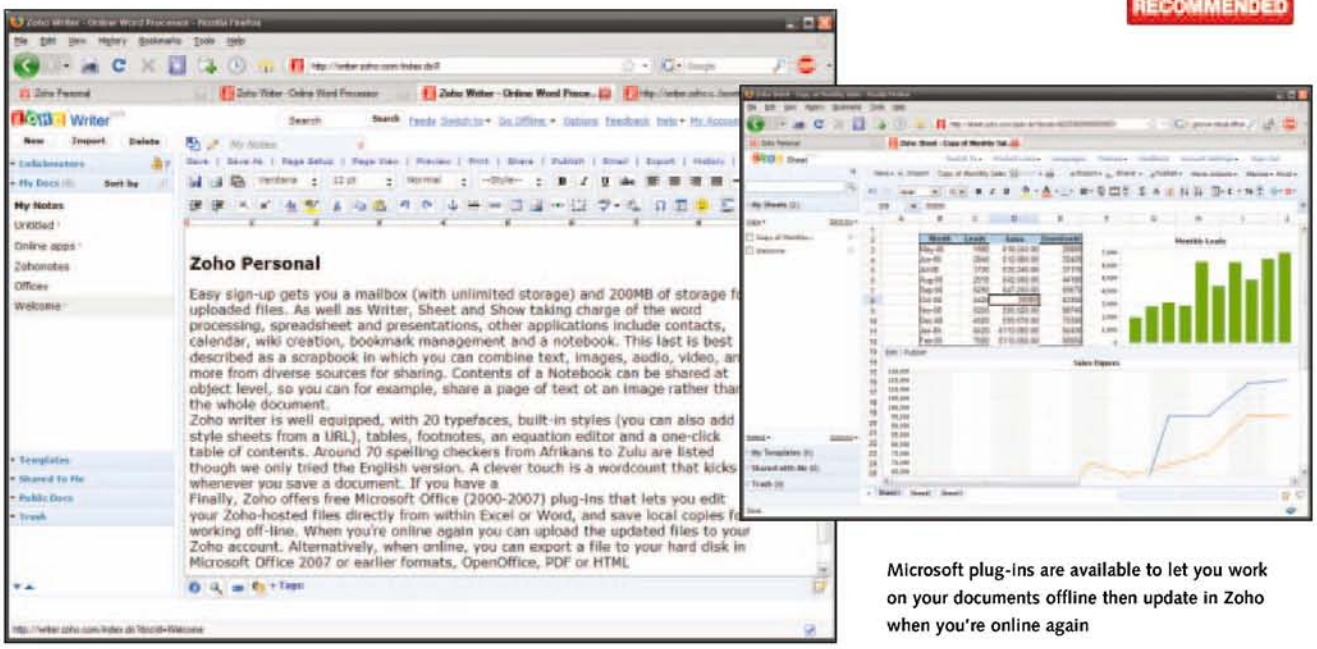
Cons Limited to one file per application online

Overall Neat and functional, with the best offline editing

Features	★★★☆☆
Ease of use	★★★★☆
Overall	★★★★☆

Zoho Personal

Price Free **Contact** www.zoho.com



Microsoft plug-ins are available to let you work on your documents offline then update in Zoho when you're online again

Signing up at Zoho gets you a mailbox (with unlimited storage) and 200MB of storage for online files. As well as Writer, Sheet and Show taking charge of the word processing, spreadsheet and presentations, other applications include contacts, calendar, wiki creation, bookmark management, database application development and a notebook. All of this – as well as your files – are shown in the Desktop, which also features a multi-tabbed file viewer.

Zoho Writer is well equipped, with 20 typefaces, built-in styles, tables, footnotes, an equation editor and a one-click table of contents. Around 70 spelling checkers from Afrikaans to Zulu are listed, though we only tried the English version. A clever touch is a word count that runs whenever you save a document. If you have an Echosign account you can digitally sign documents such as contracts, mail them, and have them digitally signed by the recipient and returned. Import and export formats include Microsoft Office DOC and DOCX, Open Office and PDF, though you can't edit the last. In common with the other components uploaded files are scanned for viruses, and there's a per-file limit of 10MB.

The Zoho spreadsheet is the star of the show, with nearly 300 built-in functions. Although there are only 27 chart types, user comforts including autofill of series such as weekdays or months, in-cell editing, and named ranges are all present. There's support for macros, with a built-in VBA editor, and you can pull in external data from a web page, web-hosted CSV file or an RSS feed. There's also support for pivot tables. For those who aren't spreadsheet experts, these let you analyse data in ways other than the row/column layout – for example, in a sales spreadsheet, finding the best-selling items in each region. Like the other Zoho components you can share spreadsheets (or ranges from sheets) with other Zoho members, or embed them in your blog. Microsoft XLSX and XLS formats are supported for import and export, as well as Open Office.

Once again, Show supports Microsoft and Open Office presentation formats, as well as being able to export to PDF or HTML. You won't, however, get sound, transitions or other animations imported as these features don't appear in Show. The layout is conventional, with a slide-sorter on the left of the current slide and a pane for notes below. To the right is a pane offering a generous collection of well-designed themes and on a separate tab there's a large range of shapes, flowchart symbols and clip-art on tap. You can also upload your own images in GIF, PNG or JPG formats.

Zoho Wiki lets you create your own wiki and share it with others. You can embed other Zoho objects such as documents and spreadsheets, as well as images and Youtube videos. Zoho Creator lets you design business database applications, either from scratch or from imported spreadsheets. You can also hire developers to do this for you, or purchase ready-made applications in the Zoho marketplace.

The modestly named Notebook is best described as a scrapbook in which you can combine text, images, audio, video, and more from diverse sources for sharing. Contents of a Notebook can be shared at object level, so you can for example, share a page of text or an image rather than the whole document.

Finally, Zoho offers free Microsoft Office (2000-2007) plug-ins that let you edit your Zoho-hosted files directly from within Excel or Word, and save local copies for working offline from a toolbar. When you're online again you can upload the updated files to your Zoho account.

Verdict

Pros Lots of applications; Microsoft Office plug-ins for working offline
Cons Limited online file storage and hard-to-find help
Overall An impressive array of applications, though minor interface inconsistencies can make it hard to get around

Features	★★★★☆
Ease of use	★★★☆☆
Overall	★★★★☆

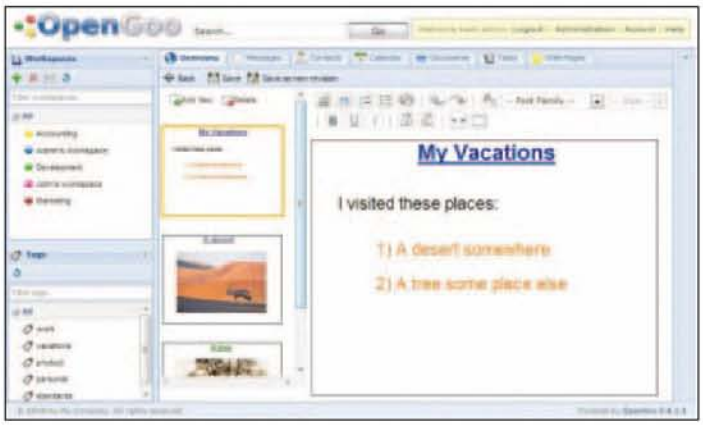
Online office suites

OFFICE SUITE	AJAX WINDOWS	EDESK ONLINE	GLIDE	GOOGLE DOCS
Price	Free	Free	Free	Free
URL	www.ajaxwindows.com	www.edeskonline.com	www.glideos.com	http://docs.google.com
Storage limit	1GB	100MB	10GB	See review
Word processor	✔	✔	✔	✔
Spreadsheet	✘	✔	Offline	✔
Presentations	✔	✘	✔	✔
Mail	✔	✔	✔	✔
Calendar	External	✔	✔	✔
Blogging	✘	✘	✔	✘
Drawing	✔	✘	✘	✘
Photo editing	External	✘	✔	✘
Form creation	✘	✘	✘	✔
Wiki	✘	✘	✘	✘
Office 2007 compatible	✘	✘	Export only	✘
Office 97-2003 compatible	✔	XLS only	Export only	✔
Open Office compatible	✔	✘	✘	✔
PDF creation	✔	✔	✔	✔
Spelling languages	0	1 – needs IE plug-in	3	35
Fonts	17	30	20	11
Spreadsheet functions	N/A	297	41	250
Spreadsheet charts	N/A	27	0	22
Document sharing	✘	✘	✔	✔
Offline synchronisation	✔	✔	✔	✔
Offline editing	✘	✘	✘	Docs only
SCORES				
Features	★★☆☆☆	★★★☆☆	★★★☆☆	★★☆☆☆
Ease of use	★☆☆☆☆	★★☆☆☆	★★☆☆☆	★★★★☆
OVERALL	★☆☆☆☆	★★☆☆☆	★★☆☆☆	★★★☆☆

Online office suites

OFFICE SUITE	PEEPEL	THINKFREE	ZOHO PERSONAL
Price	Free	Free	Free
URL	www.peepel.com	www.thinkfree.com	www.zoho.com
Storage limit	No current limit	1GB	200MB
Word processor	✔	✔	✔
Spreadsheet	✔	✔	✔
Presentations	✘	✔	✔
Mail	✘	✘	✔
Calendar	✘	✘	✔
Blogging	✘	✔	✘
Drawing	✘	✘	✘
Photo editing	✘	✘	✘
Form creation	✘	✘	✘
Wiki	✘	✘	✔
Office 2007 compatible	✘	✔	✔
Office 97-2003 compatible	✔	✔	✔
Open Office compatible	✔	✘	✔
PDF creation	✘	✔	✔
Spelling languages	1	10	70
Fonts	7	All	20
Spreadsheet functions	165	302	297
Spreadsheet charts	0	70	27
Document sharing	✔	✔	✔
Offline synchronisation	✘	✔	✔
Offline editing	✘	✔ with free desktop version	Plug-ins for Word/Excel
SCORES			
Features	★★☆☆☆	★★★☆☆	★★★★☆
Ease of use	★★★★☆	★★★★☆	★★★☆☆
OVERALL	★★★☆☆	★★★★☆	★★★★☆

Your own online office



Online office applications can appeal to the business user who is always on the move

What we've looked at here is squarely aimed at the rugged individual, but there are obvious attractions for corporate users. The idea of 'go anywhere' applications for business people on the move is appealing, and an added attraction is that, unlike a laptop or removable storage device, online files can't be dropped, stolen or left in a taxi. However, many companies will be reluctant to entrust their data to a third party.

One answer is for an organisation to set up its own online office and storage, hosted on secure company servers. Google has just announced a sales push through resellers for Google Apps – basically the server side of Docs, with mail and other facilities. Opengoo started as a degree project at Uruguay's University of the Republic, and is now an international open-source project. The web server office software can be downloaded from Sourceforge.net. Ulteo also offers open-source web office software for Linux servers, using Openoffice.org.

The other solution can be filed under 'wait and see what Microsoft does'. Office Live Workspace is already up and running in beta. This gives personal and small-business users 500MB of online storage, with the facility to share files with up to 100 other users. At present it's free, though the business version offers several pay-for extras. Users can upload, download, share and view files online, but if they want to edit them they need to have Office installed on the PC. Downloading a plug-in makes opening from and saving to Live Workspace possible directly from Office applications, via a toolbar or menu item.

Last October the company announced that the next version of Office will deliver lightweight versions of Word, Excel, Powerpoint and One Note through a browser. So, Office Live users will have the same facilities as those we've reviewed in this feature – editing in a browser regardless of location, installed software or, we hope, platform. Corporate users will be able to get this either on a subscription or volume-licensing scheme. Whether there will be a free or advertising-supported version for home users remains to be seen.

Editor's Choice

Editor's Choice Thinkfree
Recommended Peepel • Zoho Personal



Thinkfree



Peepel



Zoho Personal

There's a distinct split between the straightforward storage-and-apps model, and the more ambitious desktop-in-a-browser paradigm. Of the latter we felt that Ajax Windows was frankly unusable. Edesk and Glide did somewhat better, but were still buggy, complicated and overcrammed with gimmicks and Edesk, like Ajax Windows, had too many icons that were just links to other sites, rather than an integral part of the desktop.

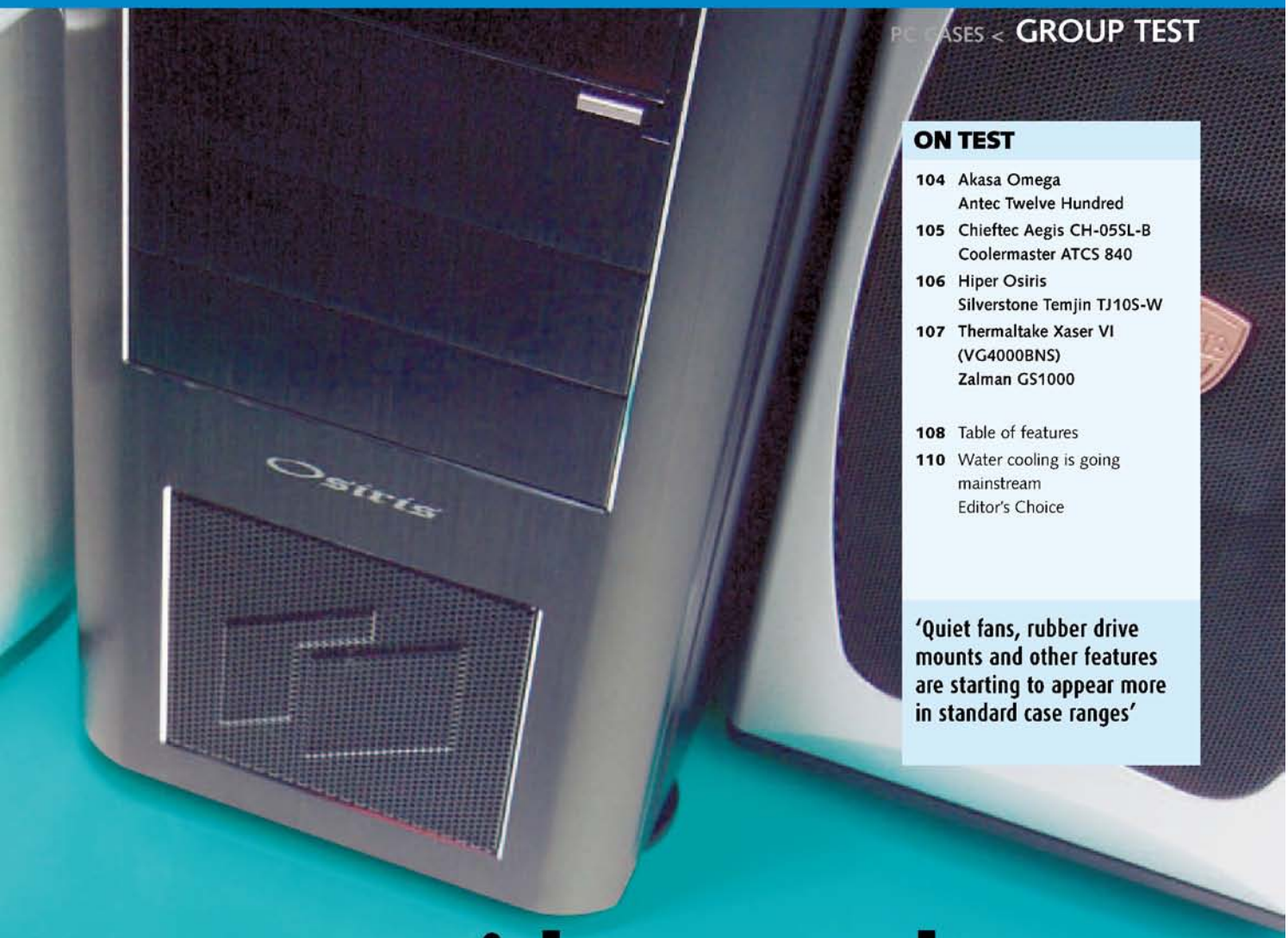
Despite its modest capabilities and lack of a presentation program, we felt that Peepel did the desktop best. It is elegantly and originally designed and very easy to learn. We hope to see it develop further but for now it takes our first Recommended award.

Of the less ambitious storage-and-apps trio, the choice is more difficult. The sheer clout of Google is going to attract many and if you're an existing Gmail or Picasa user, then it acts as a portal to these, too. It handles collaboration well and, despite being a minority interest, the Forms module is an excellent way of creating and sending questionnaires and analysing the results.

Zoho's applications outperform Google's in terms of features, especially in the spreadsheet where it's the only contender to support VBA and one of the two that offer pivot tables. For those who find this important – and we do – it's also better looking. We particularly liked the way the file manager tucked in to the left of each application. The wiki creation and the shared Notebook may also be useful to some, and the Word and Excel plug-ins offer much better offline access than the grinding of Google Gears, and so it too wins a Recommended award.

Our Editor's Choice is Thinkfree. Despite the overhead of downloading code to the host PC's Java Virtual Machine the first time it is used we found it much snappier when editing files. At a gigabyte, its free storage is five times that of Zoho. Bloggers may find the Note application of interest and all users will appreciate the wealth of online goodies such as templates and clipart.

The clincher for us, however, is the cake-and-eat-it approach of having the choice of on or offline editing. **PCW**



ON TEST

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Antec Twelve Hundred
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Editor's Choice

'Quiet fans, rubber drive mounts and other features are starting to appear more in standard case ranges'

Inside out: The PC case probe

Eight PC cases are put to the test by Simon Crisp to find out if beauty is more than skin deep

These days, a PC case can be anything from a simple, well-designed standard midi tower case up to a custom painted case costing in excess of £600.

The line between a standard case and a gaming case is getting more and more blurred, as features normally found in high-end cases filter down to the mainstream. Quiet fans, rubber drive mounts and other features are starting to appear more in standard ranges, so it makes sense to look at some of the better-quality mainstream cases a little more closely to see if the features on offer match your requirements.

One of the major things to look out for is how the air flow inside the case is managed. There's little point in buying a good-looking case then cramming it full of graphics cards, hard drives and a powerful CPU, only to find that the hot air trapped inside the case causes the graphics and CPU cores to slow down.

Another interesting development in case design is the use of larger, slower-spinning case fans, typically 200mm or more, which offer a lot of air movement but do it more effectively and quieter than a multitude of small, fast-spinning fans, so now even hard-core gamers can get a little peace and quiet.

We've gathered together eight cases from well-known manufacturers to take a look at the current design trends, both in midi and full tower designs.

Akasa Omega

Price £120.69 **Contact** Scan Computers 0871 472 4747 www.scan.co.uk



Akasa's Omega chassis is a well-built, no-frills midi tower and the evolution of the previous Eclipse case, a popular choice among enthusiasts. It offers plenty of scope for system builders, including those who want to add water cooling, because the whole case is accessible. The two side panels are held in by thumbscrews and so is the roof, which is very handy if you want to install a cooling radiator. The motherboard plate is removable and the seven PCI expansion plates carry on the tool-free theme, each held in place by a thumbscrew.

The Omega looks solid and, due to its aluminium construction, weighs just 8.6kg. The whole case is well finished in anodised black; the only exceptions are the motherboard backplate and the rear panel – the whole removable unit is constructed from a mirror-finished stainless steel.

Removing the top panel allows access to the power supply unit's (PSU) mounting plate, which is capable of securing any size of power supply from the smallest up to the very long high-wattage units.

There are two removable drive cages for 3.5in drives but both require the removal of the front bezel. The larger of the two can hold up to five drives. The smaller bay holds two drives and has external access, so it's ideal for a card reader or a 3.5in fan control unit. Unfortunately you'll need a screwdriver to remove the two screws holding this bay in place. Removing the front bezel is also the only way to access the washable filter for the front fan.

The Omega has two 120mm 1,200rpm fans, one fitted to the front panel in front of the hard disk cage and the other on the rear. The front door has a mesh panel running down the centre for ventilation.

Personal Computer World RECOMMENDED

Verdict

Pros Well-built, no-frills midi tower
Cons Awkward access to the drive bays
Overall The Omega is a well-built, well-finished case that can be converted in a variety of ways, simply because of the way all the case panels are removable.

Features	★★★☆☆
Build quality	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Antec Twelve Hundred

Price £146.28 **Contact** Yoyotech 0871 855 3380 www.yoyotech.co.uk



Antec's Twelve Hundred is the current flagship of the company's gaming case range and the evolution of the massively popular Nine Hundred case, with 12 drive bays, seven expansion slots and a host of cooling fans.

The build quality of the Twelve Hundred is very good; it's made from good-quality steel with a plastic front bezel and top, with everything beautifully finished in matt black – even the inside finish would shame some outer case finishes.

If you like cases with plenty of fans you won't be disappointed by the Twelve Hundred, which has five 120mm fans, one in the front of each of the three drive cages and two on the back panel. And if that isn't enough it has a massive 200mm exhaust fan built into the roof. All the fans are speed adjustable and backlit by blue LEDs. The front three have small control knobs built into the front bezel while the top and rear fans have three-way slider switches on the rear panel. If you want more cooling, two additional 120mm mounts are included, one in the side panel (which has a Perspex and mesh window) and one in the back of the uppermost 3.5in drive cage.

To access the drive cases you have to remove both side panels and undo four thumbscrews per cage – this is as tool-free as the drive bays get. The drive cages are a work of art in themselves; each holds up to three drives and has a small lift-up flap set into the top that releases the washable filter for the fan. You have to use the extra-long mounting screws provided to install any hard disks though, as the bays have anti-vibration mounts built into them.

There are even small rubber feet on the bottom of the case to mount the power supply, to cut down on the vibration coming from the PSU.

Personal Computer World RECOMMENDED

Verdict

Pros Build quality; attention to detail
Cons Expansion plates aren't tool-free
Overall Superbly made case with a high level of attention to detail with some very neat design features

Features	★★★★☆
Performance	★★★★★
Value for money	★★★★☆
Overall	★★★★☆

Chieftec Aegis CH-05SL-B

Price £69.99 **Contact** Specialtech 0870 460 5676 www.specialtech.co.uk



Chieftec has a large collection of cases ranging from small media center ones up to larger workstation units. One of the latest is the Aegis CH-05S, a midi tower design which is part of the company's Mesh range. The front door has a mesh centre panel which allows air ventilation, via the grille in the front bezel, and the mesh screen on the side panel, hence the family name.

The Aegis CH-05S is constructed from steel with a plastic front bezel. The door doesn't come with any fans pre-installed but does support two 120mm and two 92mm fans. One 120mm fan can be mounted on the roof of the case, but access is awkward. The roof of the case is held in by six screws, three in the rear of the case which are easy to remove – although it would be better if they were thumbscrews – but the three holding the front of the roof are only accessible by removing the front bezel, which seems a bit excessive. Surely the three screws to the rear of the roof can hold it firmly enough.

The second 120mm fan fits directly to the rear panel. The two 92mm fans are fitted via a mount on the motherboard plate (which is fixed) and once fitted they blow air across the 3.5in drive cage.

The drive cage itself can hold up to six 3.5in drives and has tool-free mounts which comprise a pair of plastic rails per drive. These clip to the drive and slide neatly into the bay. Sitting above the cage is a single 3.5in bay with external access, ideal for a floppy disk drive, card reader or fan controller. This bay and the three 5.25in bays are also tool-free and held in place by a pin attached to a plastic arm. Simply pulling the arm back allows the drive to be fitted and, once released, the pin fits into the rear screw hole of the drive.

Verdict

Pros Tool-free drive bays and expansion plates

Cons No fans supplied

Overall The Chieftec Aegis is a no-frills midi tower that has plenty of internal space to work in and is suitable if you are on a tight budget

Features	★★★☆☆
Build quality	★★★☆☆
Value for money	★★★★☆
Overall	★★★☆☆

Coolermaster ATCS 840

Price £219.99 **Contact** Ebuyer www.ebuyer.com



When the first aluminium cases appeared, some of the best were from the Active Thermal Convection System (ATCS) range by Coolermaster. Well, the legend has returned in the guise of the ATCS 840, a tower case and, while the build quality may not equal its predecessors, it's still a very well-made case with interesting design features.

The ATCS 840 has been designed to accommodate two power supplies for heavy-duty users – one can be fitted at the top and the other on the bottom of the case. Another neat idea is the large cut-out section on the removable motherboard plate, which makes mounting a third-party CPU cooler, requiring a motherboard backing plate, much easier.

Coolermaster hasn't spared anything when it comes to cooling with the ATCS 840. There are three 230mm fans, two in the roof and one on the front panel, and a 120mm fan on the rear panel, all three of which are low noise (230mm quoted at 19dBA, 120mm quoted at 17dBA), with additional mountings for three optional 120mm fans, two in the front drive bay cage and one in the case floor.

If you want to install water cooling, the two fans in the roof can be removed and replaced by a dual- or triple-fanned radiator. An external duct over the expansion plates is also provided to vent heat from the graphics cards. This can also be fitted with a 120mm fan to force air through more effectively.

There are 12 tool-free drive bays, six 5.25in and six 3.5in which have rubber-covered mounts to reduce drive vibration. It's a shame the fans haven't been fitted with anti-vibration mounts or that there isn't any noise-deadening material fitted on the large side panels as these tend to amplify any vibration present.

Verdict

Pros A welcome return of a classic line

Cons Build quality not as good as the original ATCS range

Overall Coolermaster's ATCS 840 has some good design features such as the cutout in the motherboard plate and the ability to use two power supplies, but they come at a hefty price

Features	★★★★☆
Build quality	★★★★☆
Value for money	★★★☆☆
Overall	★★★★☆

Hiper Osiris

Price £79.91 **Contact** Scan Computers 0871 472 4747 www.scan.co.uk



Compared to the other manufacturers in this group test, the name Hiper may be the least well-known but don't let that put you off. The UK-based company makes some very nice cases and pays a lot of attention to build quality and design.

The Osiris midi tower is its latest case and is up to the company's normal standard of build quality and finish. The case is made from aluminium, but not any old alloy – it's not every day you see a case made from military grade 6063-TS alloy – and it's available in a silver or black finish. Our review sample was flawlessly finished in black inside and out, with the roof and front panel anodised. The only relief from the black finish is the motherboard backplate and the rear panel, which have a natural aluminium finish.

Although the motherboard backplate is fixed, there is plenty of room inside the Osiris to work so it isn't really an issue. To access the drive cage and bays you have to remove the front bezel, but this isn't a problem as there is a handhold under the bezel; a gentle tug and it comes off. The 3.5in internal cage is held by two thumbscrews and holds the front 120mm fan. Hiper even supplies black-finished thumbscrews to fix the four vertically mounted hard disks. All the drive mounts have rubber linings to reduce case vibration from hard and optical drives. Sitting just above the drive cage is a thumbscrew fixed tray that can hold a floppy drive, Flash card reader or fan controller. This also has rubber mounts on its base.

The Osiris comes with three of Hiper's own 120mm fans; apart from the previously mentioned front fan there is one in the roof and one in the rear panel. Another nice design feature is the spring-loaded clips that hold on both side panels, which are even easier to use than thumbscrews.

Verdict

Pros Superb build quality and finish
Cons Lack of removable motherboard tray
Overall Hiper's Osiris oozes quality and its design is great for tidy system builds

Features	★★★★☆
Build quality	★★★★★
Value for money	★★★★★
Overall	★★★★☆

Silverstone Temjin TJ10S-W

Price £193.55 **Contact** Specialtech 0870 460 5676 www.specialtech.co.uk



The TJ10S-W is the latest case in Silverstone's popular Temjin range. It combines reasonable build quality with some useful features and is almost entirely made from 2mm aluminium.

The expansion panels and surround, and the housing for the mid case fan are made from steel. If you keep taking graphics and other cards out of the expansion panels, the mounting holes tend to become enlarged by constant use, so it makes sense for them to be made out of a harder material.

The mid case fan and mount are interesting; the front of the mount is grooved so it can be used as a support for long graphics cards and the 120mm fan keeps the card(s) cool. It draws in air via a well-designed slot duct built in the case side panel.

Like many of the latest cases, the power supply is bottom mounted. This allows hot air to be expelled by the 120mm fan in the rear panel above it. Although the case only comes with two 120mm fans, there are mounts for three more, two in the roof of the case and one separating the two 3.5in drive bays.

The two drive bays hold three drives each and, although the case is tool-free, the drives have to be screwed in, vertically – but at least you know the drives are firmly secured. Similarly, drives need to be held by screws in the four 5.25in bays. The case also contains a 3.5in drive bay that has external access, ideal for a Flash card reader or fan controller box.

The motherboard backplate slides out, held in place by four thumbscrews and the two mounting channels are lined with plastic, which makes the backplate slide freely in and out. The I/O ports sit in a pull-up box, built into the top of the case and comprise two USB2 ports and two audio ports.

Verdict

Pros Graphics card cooler
Cons Lack of tool-free features
Overall The latest case in Silverstone's Temjin range has plenty of space to house a powerful system. It's just a shame there aren't more tool-free components

Features	★★★☆☆
Build quality	★★★★☆
Value for money	★★★☆☆
Overall	★★★★☆

Thermaltake Xaser VI (VG4000BNS)

Price £147.23 **Contact** Specialtech 0870 460 5676 www.specialtech.co.uk



The latest incarnation of Thermaltake's massive Xaser VI tower case is ideal if you have a lot of drives, as it has seven 5.25in and seven 3.5in drive bays. It's also good if you are thinking about a triple or quad graphics card setup as it has 10 tool-free PCI slots.

All the drive bays are tool free. The 3.5in drive bays are spilt between a removable cage that holds five bays, and the two remaining ones, located on the bottom of the case, that can be removed to install either one or two additional 120/140mm fans. The drive bays consist of plastic drawers that are held in place by a simple lock. The same method is used for the drives themselves, but you can screw them in for more security.

The Xaser VI is constructed from 1mm steel with an aluminium front bezel and has enough room to work inside without removing the motherboard backplate. Although the motherboard plate slides out, it is held in place by four tiny screws. But it would be much easier if the design of the side panels used thumbscrews instead. The side panels are held in place by a large thumbscrew and two tiny thumbscrews that are hard to grasp if you have large fingers.

The motherboard plate has slots cut into it so the data and power cable runs from the motherboard and PSU to the drives are tidier. The movable PSU support bracket allows you to fit whatever size power supply you want into the Xaser VI, knowing that it will be fully supported from the underside of the unit.

The Xaser VI also comes with a big accessory box, containing useful tools, a spare 140mm fan, a 5.25in to 3.5in converter, cable tidy kit, the usual fittings and a storage box that fits into a 5.25in drive bay.

Verdict

Pros Huge amount of space, including drive bays and expansion slots

Cons Very small thumbscrews and tiny screws holding motherboard backplate

Overall A great case if you are thinking about a multi-graphics, multi-drive PC, but if you intend to constantly fiddle with the internals then those small thumbscrews will drive you round the bend

Features	★★★★☆
Build quality	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Zalman GS1000

Price £110.63 **Contact** Quiet PC 0870 321 4260 www.quietpc.com



When we last looked at PC cases, we raved about the build quality of the midi tower Zalman Z-Machine GT900 but winced at its huge price tag. This time we have the full tower GS1000 to cast our eye over and, although it's cheaper than the GT900, it lacks nothing in build quality and features.

Built from a mix of steel, aluminium and plastic, our review sample GS1000 had a good-quality glossy piano-black finish, but there is also a version with a titanium finish. Both of the side panels are held in place by captive, sprung locking screws and each panel has a handle on the rear edge so there's no need for brute force to remove a reluctant panel.

Internally the GS1000 has some very good design features, one of which we've never seen in a standard PC case before – the case is split internally. The power supply is separated from the other internals by a metal plate, with two very large holes in it. There are also two large plastic-lined cutouts in the bottom of the side plate and similar holes all down the far edge of the motherboard plate. This means you can hide the majority of the main power loom and other power cables behind the backplate.

Two flaps on the front bezel drop down to reveal two 3.5in drive cages, which can hold three drives each. The bottom drive cage has a Sata backplane, which means the three drives used in this bay can be hotswapped. You can buy a backplane for the other as well. All the 3.5in drive bays have rubber mounts, while the 5.25in drive bays use the same captive screws used on the side panels.

The case comes with two 120mm fans that are surprisingly noisy. There are mounts for three more 120mm fans; one in the roof and two on the bottom.



Verdict

Pros Build quality; drive bay design

Cons Fans are noisy

Overall With superb build quality and design together with a very reasonable price, Zalman's GS1000 is an ideal case for the gamer or for those looking to build a custom workstation

Features	★★★★☆
Performance	★★★★★
Value for money	★★★★★
Overall	★★★★★

PC cases







MANUFACTURER	AKASA	ANTEC	CHIEFTEC
Model name	Omega	Twelve Hundred	Aegis CH-05SL-B
Price (inc Vat)	£120.69	£146.28	£69.99
Manufacturer URL	www.akasa.co.uk	www.antec.com/uk/	www.chieftec.com
Available from	www.scan.co.uk	www.yoyotech.co.uk	www.specialtech.co.uk
FEATURES			
Format	Midi tower	Full tower	Midi tower
3.5in drive bays hidden/external access	5/2	9/0	6/1
5.25in drive bays external access	4	3	3
Expansion slots	7	7	7
Removable motherboard backplate	✔	✘	✘
Clear side panel included or option	Option	✔	✘
Front cooling fan size/number	120mm/1	120mm/3	✘
Rear cooling fan size/number	120mm/1	120mm/2	✘
Top cooling fan size/number	N/A	200mm/1	✘
Side panel fan size/number	N/A	Option/1	✘
Fans backlit LEDs/colour	✘	6/blue	✘
Additional fan mounts	✘	2 120mm	2 120mm, 2 92mm
Soundproofing included	✘	✘	✘
Rear panel drilled for water cooling	✘	✔	✘
Power supply included	✘	✘	✘
Power supply location	Top	Bottom	Top
Security lock	✘ (loop)	✘	✘
Manual included	✘	✔	✔
Dimensions mm (wxdxh)	240x560x460	213x513x582	205x540x460
Construction	Aluminium/stainless steel/ ABS plastic	Steel/plastic	Steel
Weight (kg)	8.6	14.5	12
TOOL-FREE COMPONENTS			
Side panels	✔	✔	✔(1)
Drive bays	✘	✘	✔
Motherboard plate	✔	✘	✘
Expansion plates	✔	✘	✔
I/O PORTS			
Position	Lower front side	Top of front bezel	Bottom right front
USB, audio etc	2 USB 2, 1 Firewire, 1 eSata, 2 audio	2 USB2, 1 eSata, 2 audio	2 USB2, 1 Firewire, 2 audio
Accessory box contents	Motherboard fitting kit, drive fitting kit, 4 castor wheels	Motherboard fitting kit, drive fitting kit, cable tidies, 5.25-3.5in bay converter	Motherboard fitting kit
SCORES			
Features	★★★☆☆	★★★★☆	★★★☆☆
Build quality	★★★★☆	★★★★★	★★★☆☆
Value for money	★★★★☆	★★★★☆	★★★★☆
OVERALL	★★★★☆	★★★★☆	★★★☆☆

					
	COOLERMASTER	**HIPER**	**SILVERSTONE**	**THERMALTAKE**	**ZALMAN**
	ATCS 840	Osiris	Temjin TJ10S-W	Xaser VI (VG4000BNS)	GS1000
	£219.99	£79.91	£193.55	£147.23	£110.63
	www.coolermaster.com	www.hipergroup.com	www.silverstonetek.com	www.thermaltake.com	www.zalman.kr
	www.ebuyer.com	www.scan.co.uk	www.specialtech.co.uk	www.specialtech.co.uk	www.quietpc.com
	Full tower	Midi tower	Tower	Full tower	Full tower
	6/0	4/1	6/1	7/0	6/2
	6	5	4	7	2
	7	7	7	10	7
	✔	✘	✔	✔	✘
	✘	✔	✔	option	✘
	230mm/1	120mm/1	120mm/1	140mm/1	✘
	120mm/1	120mm/1	120mm/1	120mm/1	120mm/1
	230mm/2	120mm/1	✘	140mm/1	120mm/1
	✘	✘	✘	✘	✘
	✘	N/A	✘	Front & back/blue	✘
	3 120mm	✘	3 120mm	1 140mm	3 120mm
	✘	✘	✘	✘	✘
	✔	✔	✔	✔	✔
	✘	✘	✘	✘	✘
	Top & bottom	Bottom	Bottom	Top	Bottom
	✘	✘	✘	✔	✘
	✘	✔	✔	✘	✔
	243x630x580	202x526x452	207x644x521	250x660x605	220x580x560
	Aluminium	Aluminium	2mm aluminium, steel rear panel & mid fan mount	1mm SECC steel, aluminum front bezel	Aluminum, steel, ABS plastic
	13.25	8.4	13	18	12
	✔	✔	✔	✔	✔
	✔	✘	✔	✔	✔
	✘	✘	✔	✘	✘
	✘	✔	✘	✘	✔
	Top (hidden)	Top	Top (hidden)	Top (hidden)	Top (hidden)
	4 USB2, 1 Firewire, 1 eSata, 2 audio	2 USB2, 1 Firewire, 1 eSata, 3 audio	2 USB2, 1 Firewire, 2 audio	4 USB2, 1 Firewire, 2 eSata, 2 audio	2 USB2, 1 Firewire, 2 audio
	Motherboard fitting kit, drive fitting kit, cable tidy kit, 5.25-3.5in bay converter	Motherboard fitting kit, drive fitting kit, cable tidy, fan controller cables, 3x expansion plates slotted for cooling	Motherboard fitting kit, drive fitting kit	Motherboard fitting kit, drive fitting kit, large cable tidy kit, 5.25-3.5in bay converter, 140mm fan, tool box	Motherboard fitting kit, drive fitting kit, cable ties, front & back feet, CPU 12V extension cable
	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★★☆
	★★★★☆	★★★★★	★★★★☆	★★★★☆	★★★★★
	★★★☆☆	★★★★★	★★★☆☆	★★★★☆	★★★★★
	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★★

Water cooling is going mainstream

Water cooling used be seen as the domain of the ultra-enthusiast locked away in a darkened room, eking out the last drop of performance from a CPU or graphics card with home-made systems, using various bits of car radiators and parts normally found in fish aquariums. Now, however, many system builders are using it to produce silent or very high-performance PCs – and it's not just the boutique builders either. Both Dell and HP produce water-cooled high-end gaming systems.

So what's so special about water cooling? Well as we all know, the number one enemy inside a case is heat, hence the need for so many fans whirring away. Water cooling, as the name suggests, uses water pumped across special blocks sitting on the CPU and/or the graphics processing unit to remove heat generated by the processors, faster and more efficiently than a standard air cooler. This helps keep the running temperature of the processors within limits, and that's why it's ideal for overclocking. The heat generated by increasing the front-side bus speed, clock speed, and core voltages is quickly dealt with, allowing stable increases in processor clock speeds that can be way in excess of the standard speeds.

As water cooling becomes more visible in the mainstream market, many people are tempted to try it out. For anybody curious about trying out water cooling the good news is that today's DIY kits are far safer, easier to install and more complete than those of old, the source of many scare stories. You can either choose an external cooler that has the radiator and water tank sitting outside the case, pumping the water back into the case (the reason most of the cases in this review have a pair of holes drilled in the rear panel) or choose to mount everything internally using a kit from the likes of XSPC (**www.xs-pc.co.uk**), which use small water tanks and compact radiators that replace the existing case fan(s) for tidy installations.

Editor's Choice

Editor's Choice Zalman GS1000 • Hiper Osiris
Recommended Antec Twelve Hundred • Akasa Omega



Zalman GS1000



Hiper Osiris



Antec Twelve Hundred

As always, deciding which case you want depends on your requirements and personal taste. If you are building a Quadfire or Tri-SLI system and you want enough space to get some airflow working around the cards, then from this group of cases there is only one choice – Thermaltake's huge Xaser VI with its 10 expansion slots.

It's good to see Coolermaster bringing back the ATCS line, even if the ATCS 840 doesn't have the immaculate build quality of the originals, but if you are putting together a very heavy-duty system that requires two power supplies, the 840 is an excellent choice, despite the price.

Silverstone's Temjin TJ10S has an interesting design feature for keeping any graphics cards cool and it will be interesting to see if other companies follow this lead.

The two full tower cases that really stand out are Antec's Twelve Hundred and Zalman's GS1000. Both have first-rate build quality and finish and some clever design touches. By a narrow margin our Editor's Choice for this type of case is Zalman's GS1000. Its blend of features, build quality and remarkably low price make it a compelling choice despite the noisy fans. Antec's Twelve Hundred wins a Recommended badge.



Akasa Omega

Akasa's Omega case is a lot wider than a standard case and the way you can take it apart makes it an ideal base for building a water-cooled system. If you are on a limited budget but still want a degree of build quality and tool-free design then Chieftec's Aegis CH-05SL is worth a closer look. Hiper's Osiris may look simple but the attention to detail, from the sprung latches on the side panels to the use of metal pegs to hold the front bezel, as well as the quality of materials used in its construction together with the build quality itself are stunning for a case less than £80. So, it is our Editor's Choice for the midi tower cases, with Akasa's Omega earning the Recommended badge. **PCW**

'The two full tower cases that really stand out are Antec's Twelve Hundred and Zalman's GS1000'

COMPETITION

WIN! Three Solwise Homeplug AV network kits

This month, *PCW* has joined forces with networking hardware specialist Solwise to offer three fantastic Homeplug networking kits.

Each kit includes not only Homeplug AV networking, which can link devices using the mains cables in your home at up to 200Mbits/sec, but also a Draft N wireless router, capable of providing Wifi coverage at speeds of up to 300Mbits/secs.

The Solwise PL-200AV11NRT is a high-specification 802.11n Access Point capable of providing Wifi coverage at up to 300Mbits/sec, and it also has Homeplug AV built in, which can link devices at up to 200Mbits/sec using the mains electricity wiring in your home.

With four Lan and one Wan ports, routing facilities and Draft 11n Wifi, it's a powerful device that can help make sure you have high-speed internet access in every corner of your home.

One of the latest products from Solwise, the PLA-AV-3E-PIGGY6, better known as the Piggy6, is a filtered six-way power strip with three Homeplug AV Ethernet ports built into it. It's the ideal device to put behind your AV equipment, providing it with a clean power feed, as well as providing links to your network for games consoles, media streamers and satellite receivers. And thanks to Homeplug AV's speed, it will even cope with streaming high-definition video.

The PL-200AV-Push is a single-port 200Mbits/sec adapter plug. This handy little device converts any mains socket in your home into an Ethernet network outlet. Our first prize winner will also receive the 'Piggy' version of the PL-200AV, which has a pass-through mains socket on the back, so you can still plug a power lead into the socket as well.

All the Homeplug AV devices include 128-bit AES security, with push-button configuration, so your data remains secure, and it's incredibly easy to set up.



Clockwise from top: PL-200AV11NRT router, two Homeplug AV adapters and a 'Piggy6' adapter

The first prize in this competition is a router, a six-way Homeplug AV power strip, Homeplug AV adapter, and a Homeplug 'Piggy' adapter.

Two runners-up will each receive a router, a six-way power strip, and a standard Homeplug AV adapter.

For your chance to win these prizes, answer the question below and enter online at **www.pcw.co.uk/competitions**. The Solwise competition opens on 19 February and closes on 20 March 2009.

How many Ethernet ports are there on the Piggy6 Homeplug AV adapter?
a) 3
b) 4
c) 6

This competition is open to readers of *PCW*, except for employees (and their families) of Incisive Media, and Solwise. PCW is the sole judge of the competition and the Editor's choice is final. Offer applies to residents of the UK and the Irish Republic only. Entrants must be over the age of 18 and only one entry per household will be accepted. Winners will be selected at random from all correct entries received. No cash alternative is available in lieu of prizes. Incisive Media will use all reasonable endeavours to notify the winner(s) within 14 days of the close of the competition. Incisive Media reserves the right to substitute the prize for one of greater or equal value if circumstances make this unavoidable. Prizes will be dispatched by the competition sponsor(s) and the winner(s) name(s) and address(es) will be provided to the competition sponsor(s) for this purpose. No purchase of the magazine is necessary to enter the competition. Incisive Media will use all reasonable efforts to ensure that the prizes are as described on this page. However, Incisive Media cannot accept any liability in respect of any prize, and any queries regarding a prize should be taken up directly with the sponsor of that prize.

ENTER ONLINE AT www.pcw.co.uk/competitions

COMPILED BY ALAN STEVENS

BUSINESS



CUT YOUR SECURITY COSTS

Good news for companies looking to trim their IT budgets in these tough times – network security can be complicated and expensive, but it doesn't have to be that way. In this month's feature we look at how to save money by taking full advantage of readily available low-cost or even free products that can help keep your systems secure without costing the earth.

We also look at some interesting new business products, starting with a Lenovo server – or is it an IBM X Series? It's hard to tell. Fortunately D-Link's latest Green Ethernet switch is a lot more identifiable, as is the latest version of Mindjet's mind mapping software, Mindmanager 8. Fleet managers and professional drivers alike will be interested in the Pronav PNN-200 sat nav from Navevo, plus we try out a neat tool called Winsurvey, used to design and conduct online surveys without requiring programming skills.

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'Inside there's masses of space and several fans, which is good but does make the TS100 a fairly noisy device'

Read the review on page 116

OUR SCORING

Excellent ★★★★★ Very good ★★★★☆ Good ★★★☆☆ Below average ★★☆☆☆ Poor ★☆☆☆☆

OUR AWARDS

Editor's Choice: The best product in a comparative group test. Anything that wins this award is of better quality than its competitors.
Recommended: A product that combines great features, usability and value for money.
Great Value: Not the best in class, but a product that has superior features and performance for the price.



Editor's Choice Business



Recommended Business



Great Value Business

The business awards are used for products that are more suited to home offices or small businesses.

Security on a budget

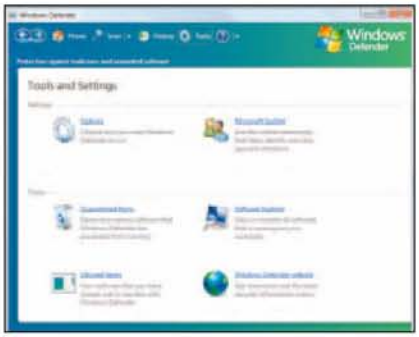
If you're concerned about security but have a limited budget, Alan Stevens shows how you can get the maximum bang for your buck



At times like these small businesses look to trim their IT budgets, with security a common and easy target. But you don't have to compromise on security to save money and there are plenty of ways to cut costs without cutting the level of protection you can afford.

Security essentials

It's undeniable that there are hackers and others out there who want to harm you and your network. However, it's equally true that in the past few years the security market, and the products it has to offer, have grown out of all proportion to the level of threat faced by the average small business. Do you, for example, really need an expensive managed security appliance if you only have a handful of users and a single shared internet connection? For most small companies the answer is no, but there are things you simply can't do without, such as a firewall, anti-virus and anti-spam protection. As essential as these are, however, there are ways of deploying such tools without spending a fortune.



Windows Defender is a free Microsoft utility that can provide basic protection against spyware and other malicious code

Let's start with the firewall, which no network attached to the internet should be without. Most ISPs include a router with a built-in firewall as part of the service they provide, usually for free. OK, it won't be the best you can get, but most provide a good level of protection against denial of service and other threats, and some can do a lot more. Just make sure it's enabled as, surprisingly, many broadband routers still come with the firewall turned off.

Don't forget that you also get a desktop firewall with Windows (XP or later). Again, it may not be the most comprehensive desktop firewall around, but it's pretty good nonetheless. Plus it's maintained at no extra charge as part of the Microsoft update service. Windows XP users can also download Windows Defender (it's bundled with Vista) to protect against spyware at no cost, with free updates again.

These tools are just as effective for protecting business users and should be looked at before anything else.

Of course you may want to spread the risk and use other products – you often get third-party desktop firewall and other security tools pre-installed on new PCs and notebooks. However, you shouldn't feel obliged to use bundled software or third-party add-ons, and you're certainly not making your network any more

Upgrade your router for better security

There may be times when the firewall in the router supplied by your ISP isn't sufficient. For example, you may want to host your own public email or web servers and route traffic to those systems without compromising the security of the network. In this case you probably need a firewall with a hardware demilitarised zone (DMZ) or software address/port mapping facilities.

If you're lucky you'll find these facilities on the router you already have, especially with more expensive business broadband packages. If you can't find these you can either switch to another router that includes these facilities or deploy specialist firewall or other security elsewhere on the Lan.



You may need to upgrade your router if the free one isn't up to the job, but replacements such as the Vigor 2820 needn't cost a fortune

For most small businesses a replacement router is usually the simplest way, with a number of affordable products to choose from such as Draytek's Vigor 2820 (See *PCW* September 2008 and **www.pcw.co.uk/2222759**).

For around £150 ex Vat this has both hardware and software DMZ facilities and a number of other useful features. These incude an integrated Virtual Private Network (VPN) server for secure remote access and the ability to support two independent broadband connections, one of which can be 3G, for backup failover and load sharing purposes.

We wouldn't recommend switching to this kind of router unless you have to, but if you need the extra features it's a good buy.

prone to attack by sticking with what comes free in Windows.

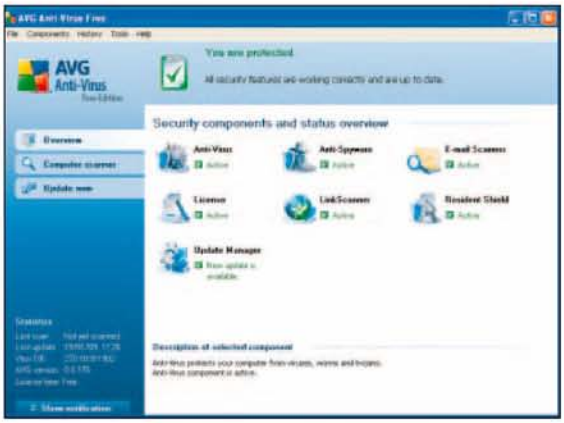
Viruses, stupid

Firewalls are essential, but so is anti-virus protection. Although, again, you don't have to spend a fortune to get it. You do, though, need to be careful as there are lots of products to choose from and it's easy to end up with a solution that's not just hard to manage but virtually ineffective.

A lot of small businesses, for example, rely on the anti-virus software bundled with new PCs they buy. Typically licensed for 6-12 months, the problem here is that it's easy to forget to renew when the licence runs out, not realise you have to or simply not bother. Bundled tools tend to change on a regular basis and it's all too easy to end up with lots of different anti-virus programs from a variety of vendors, making it hard to keep everything up to date and properly configured.

The best approach, then, is to ignore whatever comes with the PC and decide on a single vendor/product for both your mail server (if you host your own) and other servers and desktops on the network. Incidentally, companies with their own email server can save money by using whatever anti-virus tools come with it and then use a different product on the desktop. Plus if your email server is hosted, you're likely to get anti-virus protection as part of the deal, saving even more.

You will, however, still need desktop anti-virus software as viruses can be spread by web downloads, on USB keys, CD-Rom and by other means, not just email. What you get will depend on how much you have to spend, but basic anti-virus protection is cheap, even free if you look hard enough. For example AVG has a free anti-virus solution (**http://free.avg.com**) that can be upgraded to a more comprehensive security suite if required. Likewise, it's worth taking a look at Antivir from Avira (**www.free-av.com**) and Avast Antivirus (**www.avast.com**), although these products are technically only available free for personal use and business buyers may need to upgrade.



Free anti-virus software is available from companies such as AVG, but the licence terms normally exclude commercial use

Spam and other threats

Spam of course is a perennial concern. To be fair, these days most hosted services will screen for unsolicited junk mail as a matter of course. As a result it's not so important to have your own anti-spam software unless you're hosting an email server in-house. Even then, the majority of servers come with at least basic anti-spam tools built in, with little to be gained by adding anything on top. At the user end tools to identify and block junk messages are included in Outlook and most other email clients, so you don't need anything extra on the desktop.

Finally, it may be important to deploy other security tools, to filter web content, append disclaimers to email messages or encrypt data being sent or taken out of the organisation. Although they're not essential, there are benefits to be gained from all of these and if you think you need them go ahead and give them a go. Before buying, however, do your research as there are lots of alternatives to the big brands, many available for much less or even free, with big savings to be made if you know what you're doing. **PCW**

Do you need a desktop firewall?

A common question is whether or not desktop firewalls are really needed if you've already got a firewall protecting the network. The answer is that desktop firewalls can't hurt and are essential when users connect to the internet via gateways they have no control over. For example, when they take notebooks out of the office and connect to the web via a home or public Wifi network.

Unfortunately a desktop firewall can block legitimate traffic as well, leading to problems when new applications are installed. To fix this, temporarily turn the Windows firewall off to see if it solves the problem. Then create an exception rule to allow the blocked packets through. Developers are increasingly aware of the need to check for an active firewall and create exceptions automatically, should they be required.



Desktop firewalls can cause problems with some applications, but exception rules are easy to apply

Free anti-virus will replace Onecare

Although you get firewall and anti-spyware tools as part of Windows, Microsoft has always been reluctant to give Windows users free anti-virus software. Indeed, for the past couple of years it has encouraged customers who want anti-virus protection to subscribe to the Windows Live Onecare service which also includes firewall, anti-spyware, backup and other tools. A Onecare Server implementation is also available specifically for small businesses.

Unfortunately the Onecare anti-virus tools don't compare well against those from specialist vendors such Mcafee, Sophos and Symantec, and very few customers have signed up to use them. As a result, Microsoft has announced that it will be discontinuing the Onecare service in favour of a free anti-virus product, code-named Morro, which is expected to start shipping in the second half of 2009.

Onecare will be discontinued on 30 June 2009 but updates, support and subscription renewals will continue to be available until Morro ships. Our advice is to keep your wallet firmly closed and wait until that happens, especially if you're not already a Onecare customer.

NETWORK SERVER

Lenovo Thinkserver TS100

This rebadged IBM server is more than sufficient for small businesses

The Thinkserver is Lenovo's first foray into the small-business server market, albeit with more than a small helping hand from IBM. However, unlike when the Chinese vendor bought its desktop and notebook business, IBM is being more selective with its servers. So far at least, it has only agreed to Lenovo selling single and dual-socket servers, based on its industry standard X Series technology.

A limited number of Thinkserver models have been released so far, with the TS100 very much a starter system aimed at companies looking for a general-purpose server capable of both file sharing and limited email, database and web hosting.

The hardware certainly looks the part, with the TS100 housed in a solid metal tower case with room for a second redundant power supply if needed. As with the IBM original, the engineering is high quality. The only issue we had was the somewhat unusual sloped fascia which does little more than provide a trip hazard.

Inside there's masses of space and several fans, which is good but does make the TS100 a fairly noisy device in day-to-day operation. Access is via a lockable side panel but the lack of similar protection for the storage bays could be a concern.



Badge apart, it's hard to tell Lenovo's Thinkserver TS100 from the IBM X Series server on which it's based

There's room for just one Xeon processor on the Intel-based IBM motherboard. Ours was shipped with a 2.66GHz dual-core Xeon X3330. However, if you're on a budget we found TS100 servers equipped with the Xeon E3110 selling for less than £600 ex Vat. Despite having a slightly faster clock speed at 3GHz, this processor has less cache and a slower front-side bus but is more than adequate for a lot of small-business requirements.

Unless otherwise specified Lenovo fits 2GB of Ram on the TS100, with four slots altogether to extend this to 8GB if needed. An integrated Broadcom Gigabit network interface is also built in, together with six USB ports, two of which are needed for the keyboard and mouse.

On the storage front the base specification only includes one hard disk, in our case a 7,200rpm 250GB Sata (serial ATA) drive, with 160GB on the cheaper E3110-based model. Most buyers will want to add to this so there's room for up to four disks altogether in a set of hot-swap drive bays located at the front of the unit. The review machine also came with an LSI-based Raid controller in a custom mini-PCI slot, offering support for a variety of array levels including 0, 1 and 5.

A DVD-Rom reader is fitted as standard on all models but a server operating system isn't included, although you get an Easystartup disk to help load the software you want to use. Lenovo has also partnered with Landesk to develop the Easymanage software that, similarly, ships with all Thinkserver models. Unfortunately this network management platform can be quite complicated to set up and use, and is more than most small businesses will need, especially where a single server and a handful of desktops are involved.

In its favour we had no problems getting the Thinkserver TS100 to work and were impressed with what it has to offer. However, you can get much the same product from IBM vendors now with quad-core processors. There is very little to differentiate the Lenovo product apart from the bundled software and support services, which resellers often duplicate anyway. *Alan Stevens*

Verdict

Pros IBM engineering quality; choice of Xeon dual-core processors; four hot-swap drive bays; Raid controller

Cons Easymanage software may be overkill for many small businesses; little to differentiate this product from IBM original

Overall A well-engineered small-business server but little to set it apart from the IBM X Series product on which it's based

Features	★★★☆☆
Performance	★★★☆☆
Value for money	★★☆☆☆
Overall	★★★☆☆

Price £1,103.41 (£959.49 ex Vat)

Contact Lenovo 0844 800 0550 www.lenovo.com/uk/en

Specifications Tower chassis • 2.66GHz Xeon X3330 processor • Intel 3210 chipset • 2GB 800MHz DDR2 memory • Four hot-swap 3.5in hard disk bays • 250GB 7,200rpm hard disk • LSI Raid controller • Integrated Gigabit Ethernet interface • Bundled network management software

NETWORK SWITCH

D-Link DGS-1248T

A business switch able to reduce power consumption by almost 50 per cent



Left: Power-saving Green Ethernet technology is enabled by default on the D-Link switch

Below: The Gigabit Web Smart Switch from D-Link now features its power-saving Green Ethernet technology

D-Link has been banging on about its energy saving 'Green Ethernet' technology for quite some time, but it has taken a while for it to be incorporated into products. Low-end consumer switches were the first and now it's being added to D-Link's business switches, starting with the Gigabit Web Smart Switch range.

The technology involved can cut energy consumption in several ways. For example, instead of running all the ports in a switch at full power (to cope with the maximum cable length of 100m), the amount used can be adjusted on a port by port basis, according to the length of cable detected. Likewise the new D-Link switches can put ports into a low-power standby mode if nothing is found to be connected or the device attached is turned off.

Actual savings will depend on network configuration and usage, but D-Link reckons the technology will be able to reduce power consumption by almost 50 per cent on a typical small-business Lan. On top of this, new 90nm silicon technology is used on the switches to further minimise energy use.

Other claimed advantages of the D-Link technology are lower heat emissions and longer product life, with three Web Smart switches now available with Green Ethernet on board. The smallest and cheapest is the 16-port DGS-1216T at £104.33 ex Vat, followed by the 24-port DGS-1224T at £156.51 ex Vat and the range-topping 48-port DGS-1248T we were sent for review. All are 1U 19in rackmount devices housed in robust metal cases and equipped with a single integrated AC power supply at the rear.

The port connectors are all at the front, together with the usual tell-tale LEDs. On ours that meant 48 auto-sensing 10/100/1,000Mbits/sec UTP ports, four of which can be mapped to a set of SFP connectors to support fibre uplinks using plug-in adapters. The smaller models only have two of the SFP slots and are both fanless, further saving on power requirements. However, that's not possible on the DGS-1248T, which needs three fans to cope with the heat generated by so many Gigabit ports. The end result is pretty noisy and this model is best located in a machine room or sound-proof cabinet rather than an open-plan office.

A built-in web-based interface is used to manage the Web Smart Switch, with a custom management console for larger deployments and general SNMP support also provided. We found the web interface slow but effective and very straightforward with many of the options, including the power-saving feature, enabled by default.

Other options worth mentioning include support for port trunking – to link switches together and for high-speed server connections – plus the ability to configure up to 256 VLans. Similarly you get built-in support for up to four 802.1p QoS (Quality of Service) queues per port, to prioritise different types of traffic, together with a variety of security facilities including 802.1x access control and protection against packet flooding attacks.

At a just over £7 per port, the DGS-1248T is good value, especially given that it's an all-Gigabit solution. Add in the extra functionality over and above the basic L2 switching capabilities and it becomes even more attractive, with the Green Ethernet technology yet another feather in the cap of this innovative small-business network switch. *Alan Stevens*

Verdict

Pros Power-saving Green Ethernet technology; high port density; VLan, QoS and security features built in; simple web-based management

Cons Noisy fans on 48-port model

Overall An already well-specified small-business network switch made even better by the addition of D-Link's Green Ethernet technology

Features	★★★★☆
Performance	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Price £399.99 (£347.82 ex Vat)

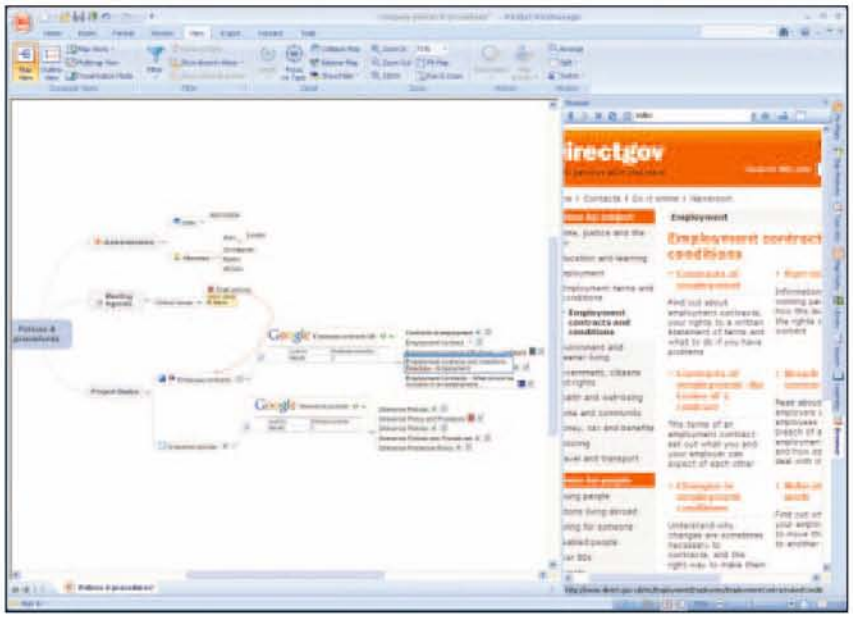
Contact D-Link 020 8955 9000 www.dlink.co.uk

Specifications 1U rackmount switch • 48 Gigabit UTP ports • Four SFP combo ports for fibre adapters • 96Gbits/sec store-and-forward switching fabric • 80s.1Q VLan tagging, 802.1p QoS support • Integrated authentication and security • Web-based and SNMP management

VISUAL PROJECT MAPPING

Mindjet Mindmanager 8

Two minds are better than one with new map sharing feature



Internet searches and other web services can be embedded into Mindmanager 8 maps

Mindmanager lets you visualise complex tasks and projects in the form of tree diagrams with branches leading from a central topic to related documents, notes and other information, a process often referred to as mind mapping. The eighth version of the program makes it a lot easier to share maps with others and adds support for extra data sources, including web services, via an embedded web browser. The program also includes built-in editors for Microsoft Office documents and the database integration has been enhanced, too.

Unlike the previous Pro and Lite editions, Mindmanager 8 is only available as a single product, with optional software-as-a-service implementation called Mindmanager Web. At £8 ex Vat a month this lets you create, edit and share maps in a browser — although this is not included in the full feature set in the Windows version. There's no new version yet for Mac users.

Information sharing is a key feature in Mindmanager 8. In previous releases you could export maps to a variety of fixed formats or distribute dynamic versions using a separate, freely distributable, player. This can now be embedded into PDF documents or Flash .swf files, removing the need to install the application directly and making it much simpler to share maps. Unfortunately Mindjet Player can only display maps as read-only. For a further £8 a month, users can subscribe to Mindjet Connect and work collaboratively on maps with other users equipped with the full Mindmanager product.

A lot of other tools have been added to this release, but we particularly liked the built-in browser that opens inside the Mindmanager Window. This enables you to conduct research and link to online data sources.

We thought the built-in document editor was a great boon as well. It enables you to directly edit Word, Excel and other Office documents included in your maps.

Another nice feature is the ability to insert web services. By dragging a map part linked to one of several search engines onto a map, Mindmanager will run a search using the selected topic and display the specified number of results as linked sub-topics. Click one of these and it opens in the embedded browser, with a refresh button also on hand to update the results as needed. A number of ecommerce services are similarly supported, including Amazon and Ebay, plus Facebook and Myspace friend searches.

Database integration is enhanced too, with a new linker tool which supports DB2, MySQL and Oracle as well as the Access, Excel and SQL Server formats.

To use Mindmanager you will need Windows XP, Vista or Windows Server (2003 or later), although officially you can only use a 32-bit operating system. .Net Framework V2.0 is also required and will be configured during installation.

We've looked at Mindmanager before and have always found it relatively easy once you've got to grips with the underlying concepts. This release is one of the first applications to adopt the Fluid ribbon menus first introduced in Office 2007, and the interface has been tweaked, with the end result being a lot more consistent and easy to use. However, it's still something of a specialist tool and we'd strongly recommend trialling it before buying. *Alan Stevens*

Verdict

Pros Embedded PDF/Flash Mindjet player; built-in browser, web services and Office document editors; enhanced database linker; hosted Mindjet Web and Connect services

Cons Not a general-purpose tool; no update yet for Mac users

Overall A significant update to this market-leading mind-mapping tool

Features	★★★★☆
Ease of use	★★★☆☆
Value for money	★★★★☆
Overall	★★★☆☆

Price £228.85 (£199 ex Vat)

Contact Mindjet 020 8261 8240 www.mindjet.co.uk

System requirements 700MHz Pentium processor or faster • 256MB Ram (512MB on Vista) • 150MB disk space • Windows XP Pro, Windows Server 2003 or Windows Vista • Office Professional 2002 or above required for Office integration

SAT NAV

Navevo Pronav PNN-200

Keep on trucking with this professional sat-nav device



The Pronav PNN-200 has extra features designed to help HGV, van and other professional drivers do their jobs

Mobile satellite navigation devices are all very similar, with what you buy mostly down to price and personal taste. The Pronav PNN-200, however, is different. It's designed specifically for use by HGV, delivery van and other professional drivers, with a clutch of extra features and additional types of information not found on your average consumer sat nav.

The Pronav looks like an ordinary palm-sized sat nav, with a bright 4.3in colour touchscreen and the usual suction-cup attachment to stick it on the windscreen. It can be used standalone using the rechargeable batteries, but an in-car power lead is still included, plus a 512MB SD card containing the software, maps and information database.

A USB cable is also provided to connect the sat nav to your PC. No CD is included though, but it is possible to put the PNN-200 into USB disk mode and copy files directly to it from a host computer. Support for Microsoft Activesync is built in too.

We popped the SD card into the review unit and were able to start using it to work out routes almost straight away. It took a while to get a good satellite fix, but no longer than on other sat navs we've tried and we found the interface clear, responsive, and very easy to follow. A stylus is provided but is easily lost, and fingers proved equally effective.

Maps can be displayed in both 2D and 3D and the instructions are clearly spoken with plenty of volume adjustment, although the speaker is at the rear of the screen and we did have to turn the radio down at times to hear it properly. The guidance instructions, however, were accurate and timely with new routes quickly calculated when we took the wrong turning.

In terms of functionality you get the usual route planning and guiding features for the UK and Northern Ireland, with facilities to plan routes using both postcodes and place names. When you start, however, you're prompted to enter your vehicle details, such as the type (HGV, light van etc), plus its size and weight. The software can then plan routes to suit the vehicle you're driving. For example, it can automatically avoid low or weak bridges, steep hills, cross-winds and other hazards to which the specific vehicle is susceptible.

Other useful options include the ability to identify sites such as HGV petrol stations, loading bays in London, penalty charge hotspots and transport cafes. Another extra feature is built-in Bluetooth, which can be linked to your mobile phone, so phone calls can be made and answered via the sat nav rather than rigging up a separate hands-free system.

Music and photo players are also included, along with an ebook reader, although we doubt many drivers will use these options, except when parked, as they can't be used while the sat nav is guiding.

The quick start guide tells you most of what you need to know and we found the Pronav PNN-200 very easy to get to grips with. However, you do need to spend some time getting used to how it all works before using it on the move.

Unfortunately you can't get any European maps for the Pronav software, so it's not suitable for international travellers, although free UK map and information updates are available throughout 2009. A six-month trial subscription to a service providing safety camera alerts (fixed and mobile) is also included in the price.

Alan Stevens

Verdict

Pros Guidance can be tailored to vehicle type, weight and size; points of interest specific to professional drivers; integrated Bluetooth for hands-free mobile calling

Cons UK and NI maps only

Overall A competent sat nav with added features that will appeal to HGV and other professional drivers

Features	★★★★☆
Performance	★★★☆☆
Value for money	★★★☆☆
Overall	★★★☆☆

Price £199.99 (£173.90 ex Vat)

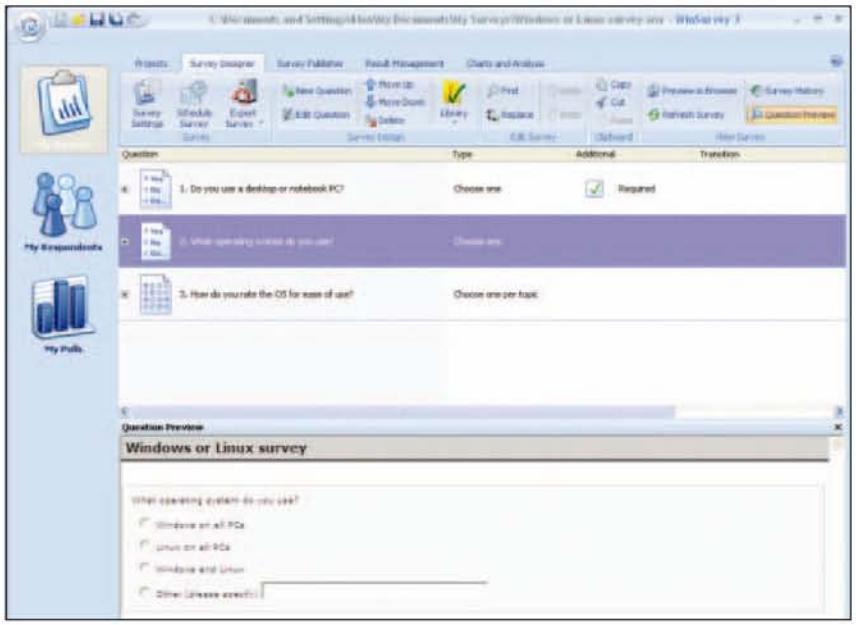
Contact Navevo 01462 476 444 www.pronav.co.uk

Specifications 400MHz Centrality CPU • Centrality Atlas III GPS receiver • 64MB Rom/64MB Ram • 4.3in colour TFT touchscreen (480x272 pixels) • Windows CE 5.0 • Software supplied on 512MB SD card • Bluetooth hands-free interface

SURVEY SOFTWARE

Acebit Winsurvey 3

Reach 9 out of 10 cats with this online survey tool



Winsurvey lets you design and publish your own online surveys and doesn't require any programming skills

Winsurvey 3 is a specialised application that lets you create and run online surveys and doesn't require any programming skills. The program offers tools to both design questionnaires and publish surveys on the web, with responses either posted directly into an SQL database or returned via email. Email can also be used to invite respondents to take part, after which you can view and graph the results and export the information for use in other programs.

To use Winsurvey 3 all you need is a Windows PC with an internet connection. The interface is very Vista-like, but it can be installed and run on any version of Windows from 98 onwards. We found it easy to use; there's a comprehensive manual and a number of useful online demos to help get started.

A wizard takes you through creation of a new survey, which can be done from scratch either from a customisable template or by copying an existing one. A library of questions is provided with support for simple yes/no and multiple-choice formats, as well as fill-in-the-blank and essay questions. Other features include the ability to conditionally link question flows, for example, skipping questions based on whether or not the answer to a previous one was 'yes' or 'no', and format and preview a survey as you build it.

The wizard also asks how you want to handle the survey, with three different methods on offer. We went for the Super-light method where the survey is published on a web server hosted by developer Acebit. A custom URL is provided for access and the results are, similarly, collated by the Acebit host before they are downloaded to the local Winsurvey PC. No extra charge is made for these hosting services.

At the other end of the scale you can do it all yourself, with the survey published to a web server of your own choice (that supports either PHP or ASP) and the results either posted by email or inserted directly into a MySQL or SQL Server database. Finally, between the two, you can publish surveys to your own web server but leave the answers to be processed by an Acebit host.

It all worked smoothly in our tests and, although we found the reporting and charting tools limited, they should be more than adequate for most purposes.

A custom Interview utility is another option when you don't want to publish a survey on the web. This can be sent to users to run themselves, returning their answers by email or in a file. Separate databases of respondents can also be maintained to invite participation in surveys, although there's no direct way of importing existing address lists from Outlook Contacts.

We liked Winsurvey 3, which proved to be a very flexible tool able to handle a wide variety of applications from single question polls, through customer satisfaction and attitude surveys, to detailed information gathering exercises. We created a handful of basic surveys and had no problems gathering the information we wanted. As with any new application, however, it does take a while to master and some experimentation is needed. We also noticed a few spelling and translation mistakes, although these don't affect the way the program works. Overall it's well written, does what it's meant to and is a good buy for a small business seeking to gain an insight into the views of its current or potential customers. *Alan Stevens*

Verdict

Pros No programming skills required; surveys can be hosted or handled in-house; built-in charting and presentation tools; email invitation of participants

Cons No direct import of Outlook Contacts

Overall Makes light work of designing, running and interpreting the results of online surveys

Features	★★★☆☆
Ease of use	★★★★☆
Value for money	★★★☆☆
Overall	★★★☆☆

Price £95 (£79.83 ex Vat @ 19% European rate)

Contact Acebit +49 61 51 136 5015 www.acebit.com

System requirements 400MHz Intel Pentium II or later • 64MB Ram • 20MB free disk space • Windows 98, ME, NT4, 2000, 2003, XP or Vista • Optionally requires own website for survey publication and local MySQL or SQL Server database

EDITED BY WILL STAPLEY



IPV6 TO THE RESCUE

According to experts, we will run out of IPv4 web addresses next year. Thankfully, IPv6, which uses 128-bit binary numbers as opposed to IPv4's 32-bit, is here to save the day. In Windows this month, we take an in-depth look at how IPv6 works and examine the Windows Hosts file – something that is often targeted by malware.

Those interested in creating a truly silent PC will discover some useful tips in Performance, while in Word Processing we show you how to deal with those Word documents that refuse to open.

We also take a close look at the latest release of Fedora in Linux. With the hugely popular Ubuntu taking all the plaudits, can Fedora make a return to form?

Finally, if you've ever wondered how to create your own stunning panoramic photographs, Digital Imaging tells you all you need to know, including what Microsoft's powerful Photosynth application has to offer.

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Left: Find out how this device can improve your sound (see page 126)
Above: Create panoramic pictures (see page 142)

Advice from our experts

PCW's experts solve your problems

HARDWARE

Q I recently installed Cyberlink Power DVD in order to watch Blu-ray discs, but I now no longer hear the sound from DVDs or TV shows within Media Center, even though the former play fine with sound from within Power DVD itself.
Vince Rutter

A The case of missing audio following a new Power DVD installation affected us a short while back, and it can be a real head-scratcher. We discovered that while Power DVD was happy to play the audio from TV shows or DVDs, you needed to register the software before Media Center could use it to deliver audio. If you're using an S/PDIF connection, also be sure to select 'use SDPIF' under Power DVD's audio options.

Q In a recent issue of *PCW* you discussed how to schedule a restart in Windows XP, and there was a note saying you would show how to do a similar thing in Vista in the next issue. I must have gone through that magazine three times but could not find the article. Can you tell me how to schedule a restart in Vista Ultimate? My living-room PC is in sleep mode 24/7 so it can wake up to do the TV recordings, which I have to manually restart twice a week.
James Rimell

A Don't worry, you didn't miss it – our Hardware columnist became distracted by other subjects, but just for you, here's what you need to do. Fire up Vista's Task Scheduler from the Administrative Tools Control Panel. Next select Create Task and go through the various tabbed options to set the required conditions and actions.

The Triggers tab is where you'll enter the time, date and regularity of your desired restart, while the action itself can be found under the Action tab. Choose the option to start a program, and browse to

'Register the software so Media Center can use it to deliver audio'

'Shutdown.exe' in the System32 folder within the main Windows folder.

Run unmodified, this will simply shut down the computer at the selected time, but by adding the arguments '-r -f', the program will first close all running applications, then restart. We've verified this will work with Vista Ultimate 32-bit edition, although you

How to tag your video clips

DIGITAL IMAGING

Q In the dim and distant past (maybe two years ago or so!), *PCW* reviewed Adobe Premiere Elements and praised its ability to organise digital images, and especially the ability to put tags on metadata so that other programs could still 'see' the tagging data.

However, I am now acquiring a fair number of videos, some from camcorder and some transferred from old cine film. Are you aware of any way of tagging video so, for example, I could call up all clips showing Torquay or birthdays?

All videos cover a fair period, such as a whole year of family activities, so picking out the individual section is not straightforward unless each is broken into hundreds of clips, each tagged.
David Poole

A Your question is very timely as the latest version of Adobe Premiere Elements (see **www.pcw.co.uk/2226614**) does pretty much exactly what you are asking (see screen). Premiere Elements 7 allows you to tag video clips with keyword tags and automatically applies Smart Tags, which rate your video on quality criteria as well as identifying clips that contain faces.

You can create Smart Library collections of clips with specific tags – all your Torquay, or birthday clips would be organised in this fashion – and you can search clip metadata.



Adobe Premiere Elements 7 introduces a new way to tag video clips

Unlike still image JPEG files, video file formats don't have a standard for storing file metadata, so this information can't be used by other applications as it's stored in a database to which only Premiere Elements has access.

may need to tweak the settings to get it running exactly as desired. Some applications that prompt for an action when shutting down may need to be reconfigured to simply close, and of course if your machine normally starts with a login screen, this will appear as usual following the restart.

Q Can I use a USB hub backwards? I have a USB photo printer (no network connection) that I want to connect to several PCs. I realise I could use a wireless print spooler but, for various reasons, the wireless router is not always on. I believe a hub would be cheaper, and less problematic, than wireless.
John Baker

A Sadly you can't use a normal USB hub in reverse, but there are other solutions that will do what you're after. As you've already identified, a print server would share the printer on your network, but it doesn't have to be a wireless model if you'd prefer a cabled connection. But since your router isn't on all the time, a more appropriate solution could be a USB switch, such as the Belkin F1U200v costing around £30. These effectively work like USB hubs in reverse, allowing you to connect and share a single USB peripheral between multiple PCs – up to four systems in the case of the Belkin model, although cheaper two-port options are also quite common.

SPREADSHEETS

Q I'm having a weird problem with Excel 2007. When I try to copy and paste a table with dates in it, the dates are four years and one day earlier than the originals. If I paste into a new sheet in the original workbook, the dates are fine. I am working in Excel 2003 compatibility mode. Is my copy of Excel haunted?
Ben Johnson

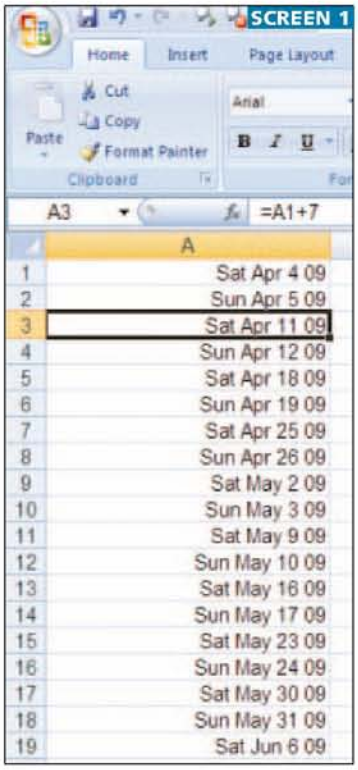
A The way all spreadsheets record dates is different from the way dates are displayed. Spreadsheets count days from a starting date and record the number of those days. The trouble is not all spreadsheets start from the same day. Excel for Windows and Lotus 1-2-3 count from 1 January 1900. I suspect your original file was made with Excel for Macintosh, which starts from 2 January 1904. Instead of copying and pasting into an Excel 2007 workbook, open your file in Excel 2007 and save it in the new Excel 2007 format – that's a file with an .xlsx extension.

Q How do I get Excel to make a list of weekend days only, like Sat Apr 4, Sun Apr 5, Sat Apr 11, Sun Apr 12 and so on? Hopefully it will allow for some months having 30 days and some 31. The right-click menu only offers days, weekdays, months or years.
Corinne Lynley

A Custom format cells A1 and A2 to 'ddd mmm d yy'. In cell A1 enter **4/4/2009**. In cell A2 enter **5/4/2009**. In cell A3 enter **=A1+7**. Point to the fill handle in A3 (the little black square at the lower-right of the cell) and drag down the column. As many consecutive Saturday and Sunday dates as you need will be displayed (see screen 1).

Use Custom format to make Excel list just weekend dates

SCREEN 1

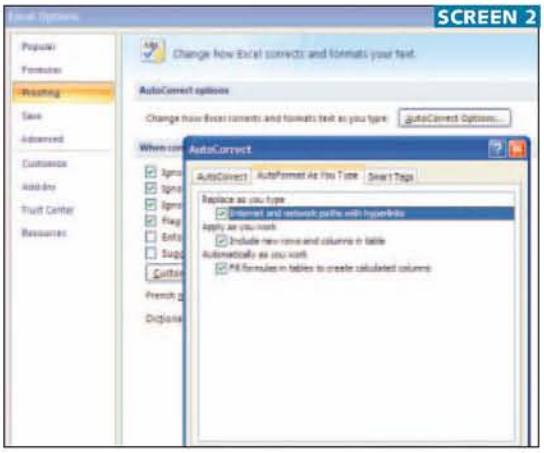


Q If I type a web address into an Excel 2007 cell, it doesn't automatically provide a hyperlink. Even the hyperlink dialogue box offered by the keyboard shortcut Ctrl & K only offers to create a link if I go to the page on the web. Any ideas?
Derek Connolly

A Click the Office icon and then the Excel Options button. Choose Proofing and then click the AutoCorrect Options button. Under the 'AutoFormat As You Type' tab, check the Replace as you type box labelled 'Internet and Network paths with hyperlinks'. Enter a web address like **www.pcw.co.uk** into a cell and it will become a hyperlink (see screen 2).

You can create hyperlinks in Excel 2007 without going to the web page itself

SCREEN 2

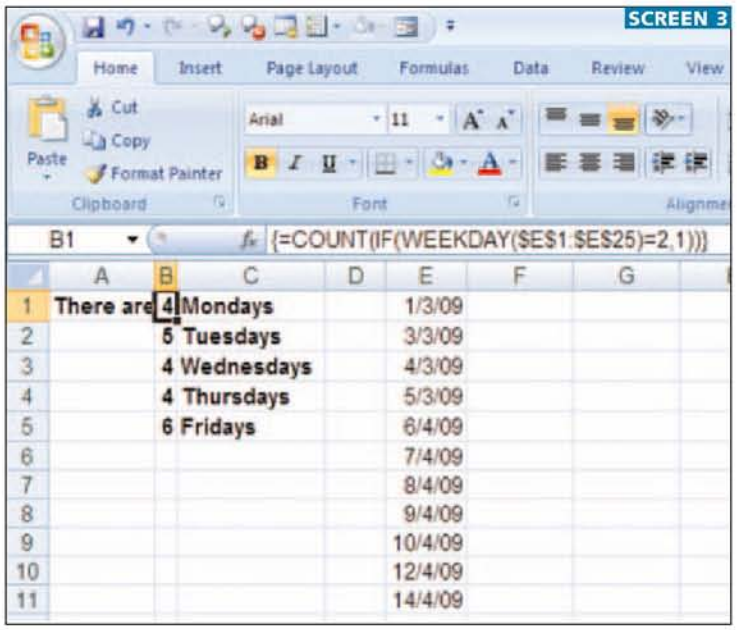


Q Is it possible to find and replace a particular type of formatting throughout an Excel worksheet? I would like to be able to change Bold fonts to Regular.
Lisa Baggott

A Bring up the Find and Replace dialogue box using the keyboard shortcut Ctrl & F. Click the Replace tab, then the down arrow next to the Format button (click 'Options >>' if you can't see this button). Select, Choose Format, then click the font you're using and Bold. Now click the Format button next to 'Replace with'. Choose the font you are using and Regular. Click the Replace All button. Excel will make the changes and tell you the number of changes made.

Q I need to know the number of occurrences of each day of the week in a range of dates. In other words, the number of Mondays and Tuesdays and so on in the range. How can I do this in Excel?
Simon Allen

A If the dates are in the range E1:E25, to find the number of Mondays simply enter in a cell: **=COUNT(IF(WEEKDAY↙ ($E$1:$E$25)=2,1)**
(Key: ↙ code string continues)



Monday, Monday... get Excel to count the number of occurrences of each day of the week

As this is an array formula, press Ctrl & Shift & Enter instead of just Enter. Excel will add curly brackets to acknowledge that it understands the calculation is to be made on every cell in the range. The first function in the formula is COUNT and the last digit is 1, so Excel counts all the 1s when the IF condition is true. WEEKDAY returns the day of the week. It has an optional second argument that can specify whether the first day of the week is Sunday or Monday. If omitted, as in this example, Sunday counts as 1. To count the number of Tuesdays use:

```
=COUNT(IF(WEEKDAY(
(SE$1:$E$25)=3,1))
```

and so on (see screen 3).

WINDOWS

Q Is there a way to isolate a single photo from a Powerpoint slideshow? I have received a PPS file of some superb photos that scroll through from photo to photo automatically. I would like to be able to save one of the best images as a separate photo so I can both print it out and use it as my Desktop background. I can pause on the photo, but if I then right-click on it there is no option to save.
Peter Ellis

A Unlike Word and Excel, Powerpoint files default to opening from Windows Explorer as a slideshow, rather than opening for editing. What you need to do is to first start Powerpoint, then open the PPS file for editing. Jump to the picture you want from the slide thumbnails and you'll then be able to save the picture from a right-click (see screen 4).

Q How can I disable the speech recognition in Vista? Having tried it, I've decided I can do without it, but have searched Windows Help to no avail.
Ted Perryman

A Right-click anywhere on the speech recognition gadget, and choose Options. Clear the tick against 'Run at Startup'. Should you decide to reprieve it, you can get it back from Start, All Programs, Accessories, Ease of Access, Windows Speech Recognition.

WORD PROCESSING

Q I recently installed Microsoft Office Home and Student 2007 to replace the 2003 version, and now Outlook Express 6 checks the spelling of my messages in French! When I go into Options to change it, there are no languages other than French. I gather that Outlook Express gets its dictionary details from Word, Excel and Powerpoint. I have checked and all three have UK English as default, but Outlook Express is still in French.
Gerry King

A As you imply, Outlook Express doesn't have its own spelling check, but borrows from Microsoft Office. According to Microsoft, when you upgrade from 2003 to 2007, the English, German and Spanish files are replaced with newer versions that are incompatible with Outlook Express.

The workaround suggested by Microsoft is to install a third-party checker such as the one you can download from **www.snapfiles.com/download/dlspelloe.html**. Another alternative – if you still have the Office 2003 installation media – is to install just the spelling tools. A more drastic approach is to ditch Outlook Express in favour of Windows Live Mail, which doesn't have the problem. It's free at **http://get.live.com/wlmail/overview**.

Q I've recently moved from Office 2000 to 2007 and in the earlier version I could right-click on a Powerpoint file in Explorer and 'Send To' Microsoft Word. This would open Word with a file consisting of one picture per page, with space below each for notes. I don't seem to have this facility in Powerpoint 2007 – is there a way of getting it back?
Dr V Wilcox

A We think the 'Send to' option was on the Powerpoint File menu, not Explorer's context menu, but there is a similar facility in Office 2007. In Powerpoint, click the Office button, then Publish, then choose 'Create Handouts in Microsoft Office Word'. This will offer the familiar options for the layout of the slides and notes (see screen 5).

The best way to extract a picture from Powerpoint

Q I have a memory, years ago, of a tip in *PCW*'s Word Processing column about putting a discreet line on a letter



Sort Access queries by date

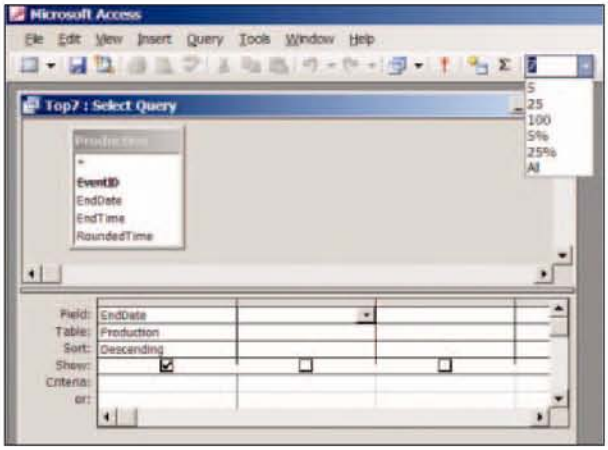
DATABASES

Q I'm fairly new to Access and have been writing queries to find stuff. My question is: do queries always have to show you all the answers? My queries are almost always sorted by date and I usually only want to see the most recent ones – seven or eight at most.
Aimee Foster

A Access has a handy built-in tool for doing exactly what you want. You don't say which version of Access you're using, but the tool exists in both 2003 and 2007.

If you're using the older version, open a query in Design view and look along the menu bar for a white box saying 'All' with a pop-down button to its right. The 'All' shows that all rows identified by the query will be returned. Click the pop-down button and you can see the ready-made options: select '5' and the top five rows will be returned. For best results, your query should sort the rows into an order that will push the ones you want to the top; a descending sort on a date column will probably be what you want. To see the top seven, just highlight the current setting and type '7' (see screen).

The 'Top' clause has been incorporated into Access' SQL dialect and the SQL code will look something like this:



You can limit the number of results from a query

```
SELECT TOP 7 EndDate
FROM Production
ORDER BY EndDate DESC;
```

In Access 2007, the same tool is on the Design tab of the ribbon in the Query Setup section.



Try the Office button in Powerpoint to send a presentation to Word in Office 2007

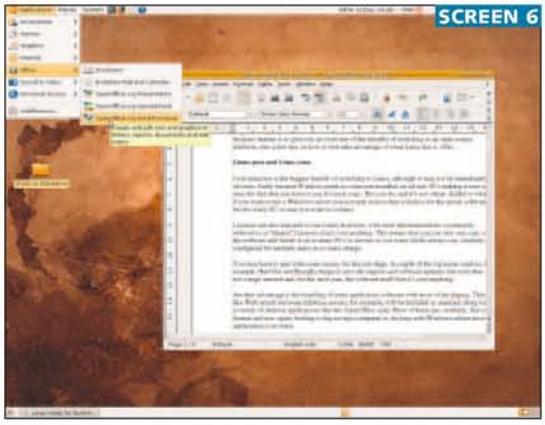
template to show where to fold it in three to fit in a DL-sized envelope. Would it be possible to have a reminder? I'm using Word 2003.
Anna Banyard

A Your memory is not only correct, but long, as it appeared in the March 2003 issue. Here's a slightly improved version. View the Header and Footer and show the Drawing toolbar. Draw a short horizontal line anywhere in the left or right margin. Right-click on it and Format Autoshape. In the Colours and Lines tab choose a discreet line combination, such as 0.75pt grey. In the Layout tab, choose Square then click the Advanced button. In the Picture Position tab set the horizontal alignment to a suitable value relative to the page – make sure this is within your printer's limits. Set the vertical alignment to 9.9cm relative to the page. OK out and save the template. The trick of doing this in the header and footer stops accidental changes when editing a letter.

LINUX

Q I have installed Ubuntu (version 8.10) for the first time. Everything works well, but I get quite a lot of updates for the system. Is this normal? I don't receive this many in Windows.
Olivia Ledsham

Regular updates within Ubuntu 8.10 are quite normal



A Don't worry, it's quite normal. Ubuntu comes with much more software than Windows does, and all of it will receive automatic updates as soon as they're available. There are no delayed service packs or bundles of updates in Ubuntu as with Windows or Mac OSX.

Also, partly because of the open-source nature of the software, every security problem tends to be fixed very quickly, even if they pose very little or no real threat. Some updates are for bugs or enhancements to applications too (see screen 6). **PCW**

LET US HELP YOU

All our experts welcome your queries. Please respond to the appropriate address below

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Sound sound@pcw.co.uk
Spreadsheets spreadsheets@pcw.co.uk
Visual programming visual@pcw.co.uk
Web development webdev@pcw.co.uk
Windows win@pcw.co.uk
Word processing wp@pcw.co.uk



Gordon Laing has been a hardware enthusiast since his first Sinclair ZX80 and as a former editor of PCW and contributor for over 10 years, what he doesn't know about technology isn't worth knowing.

→ Comments welcome on the Hardware column.
Email hardware@pcw.co.uk
Please do not send unsolicited file attachments.

Sounds better

If you're after superior sound, here are some great tips for audiophiles

The Hardware mailbag has been buzzing with comments following our recent columns on getting serious quality audio from PCs. High-end audio often divides opinions, with passionate followers balanced by those who believe there's little in it. As an audio fanatic myself, I'm pleased to report the majority of our readership belong to the former category.

Not everyone is convinced by the often esoteric techniques and equipment involved though, so we'll start with an enquiry following my experience with a Logitech Squeezebox I modified to deliver superior quality through its digital output.

It's all noughts and ones

Retired electronics engineer and *PCW* reader Peter Hinch was puzzled how such modifications could improve the delivery of what is essentially a stream of zeros and ones. Peter wrote: "It strikes me the entire signal chain, starting from a WAV file and ending in an S/PDIF data stream is a lossless, digital process. It would be a reasonably straightforward task to design a box that took the S/PDIF data stream, decoded the biphase mark signal and output a WAV file. I appreciate S/PDIF can cause harmonic distortion if afflicted with significant clock jitter, but high-end audio amplifiers have circuitry to correct this; besides, since the Squeezebox doubtless buffers data received from the network, I would expect it to employ a good-quality, constant frequency crystal controlled clock for its S/PDIF encoder.

"If I am correct in my assessment of how the Squeezebox works, it makes no more sense to modify it than to use gold-plated Cat 6 network cables or special 'audio grade' hard disks or CPU in the server. The entire system chain from WAV file to the input terminal of the audio amplifier should be lossless."



Logitech's Squeezebox 3 offers good quality for the money, but third-party modifications can unleash a true audiophile source

This is a valid point. CD transports have the added difficulty of physically reading the data from a disc, but purely electronic delivery systems such as the Squeezebox have the potential to be perfect. As Peter points out, so long as the original file is lossless and doesn't involve decoding errors, then the data should pass from the server through the device to the digital to analogue converter without any loss in quality.

Connectors and cables play a big role though, as do power sources for various components. Who better to explain it than Wayne Waananen of the Bolder Cable Company (**www.boldercables.com**), who designed and implemented the modification performed on my own Squeezebox. Wayne said: "The RCA output connector of the standard Squeezebox is not designed to S/PDIF specifications – it doesn't have 75ohm impedance. Neither are the traces from the buffer output to the connector. In most cases the receiving connector is not 75ohm and the cable length is such that multiple reflections of the original signal can be present and cause jitter.

"The mods performed by my company address the very poor power distribution to the relevant chips and ensure the output impedance and connector is correct for digital audio. We also address the use of switching power supplies. These add a great deal of noise to both the DC and AC line raising the noise floor and obscuring subtle details."

Wayne continued: "The Squeezebox is a very well-designed product for the money. But we use higher quality parts and a better signal and power layout to achieve a greater degree of fidelity than is possible for the price point it was designed for."

When it comes to hi-fi, you have to listen to the results to see if they're preferable. As discussed in previous columns, I've found my modified Squeezebox used in conjunction with a superior power supply from Channel Islands Audio (**www.ciaudio.com**) sounds better than an unmodified version.

Audiophile experiences

David Boocock is another Squeezebox fan, but wondered why I hadn't mentioned the Transporter in my most recent column. The Transporter is a high-end audio streamer from Slim Devices/Logitech that has certainly received favourable reports, but much of its budget is devoted to the analogue output which was redundant in my own system. While the digital output is improved over the standard Squeezebox, I believe the carefully targeted modifications to the digital components performed by Bolder Cable on the Squeezebox delivered a superior result for my digital-only requirements.



The high-end Logitech Transporter represents the state of the art for audiophile streaming appliances

Another reader, Mike Barnes, approved of my use of Exact Audio Copy (**www.exactaudiocopy.de**) to extract data from CDs with the minimum of errors, although he opted to encode them using WMA Lossless rather than my choice of FLAC.

However, Mike said: "My thinking and yours part company in the area of getting the sound to the audio equipment. I opted for a good-quality soundcard in the PC and a good old-fashioned analogue circuit to the amplifier, and I've never regretted that choice for a moment. Soundcards I've used with great success include the M-Audio Audiophile 2496 PCI and the Creative Labs Soundblaster Audigy 2 ZS. They both sound great out of the box. If I was going to stream the digital signal some distance from the server to the vicinity of the amplifier I'd use a Chordette Gem rather than a modified Squeezebox."

Thanks for the tip Mike. Chord is a highly respected name in the audio world and the Chordette Gem (around £400) is an interesting streaming appliance that uses Bluetooth or a direct USB connection to access music from PCs. – see **www.chordelectronics.co.uk**. The Gem acts as an external soundcard with its own power supply, thereby avoiding the hi-fi-unfriendly electronic noise inside a typical computer.

This is a popular approach exploited by other high-end PC audio solutions. Ronald Scott got in touch with an interesting list of products he'd been considering, including Doede Douma's numerous audiophile projects. These include his highly regarded DDDAC 1543 MK2 USB to I2S converter. This takes the digital audio from a PC and separates it from the clock signal to eliminate jitter errors, before outputting via a digital to analogue converter. Doede's website (**www.dddac.de**) is a dream come true for anyone who likes to get their hands dirty. It's packed with circuit diagrams to build your own. You can also order kits or pre-assembled units.

For those with true audiophile budgets, Audio Research's DAC7 digital to analogue converter includes a USB connection to deliver a high-quality external means to access and convert your digital files away from the noisy insides of a PC. Thanks to Darren Stanley for the tip. Visit **www.audioresearch.com/DAC7.html** for more details.



The Chordette Gem connects to your PC or other devices by USB or Bluetooth and outputs a quality signal to your hi-fi

Interfering Windows

Nasty things can happen to sound when you're using a computer as a source of digital audio. Windows XP's Kernel Mixer would take the sounds from all applications and up-sample them into a single 48KHz stream, thereby hobbling CD audio's 44.1KHz originals. The situation is improved with Vista, but your soundcard may not be outputting unmodified 44.1KHz digital audio.

Luckily there are ways to bypass XP's Kernel Mixer. These involve ASIO (Audio Stream Input/Output) or Kernel Streaming, usually operating as plug-ins for popular media players. However, they may not work with your specific sound chipset, and even then some audio components or their software still implement additional conversions without you realising. Like many hardware tweaks, you may have to experiment to find a combination that delivers good quality and works reliably.

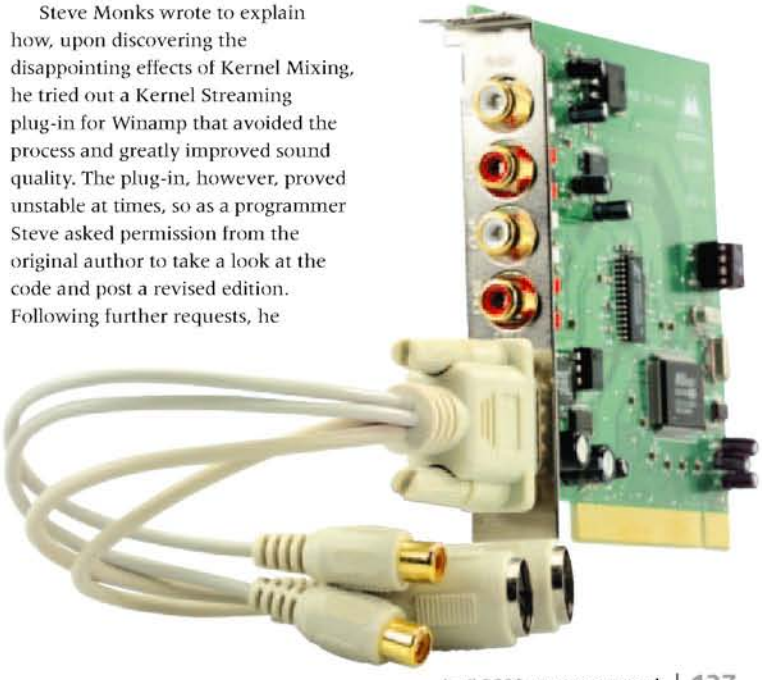
Steve Monks wrote to explain how, upon discovering the disappointing effects of Kernel Mixing, he tried out a Kernel Streaming plug-in for Winamp that avoided the process and greatly improved sound quality. The plug-in, however, proved unstable at times, so as a programmer Steve asked permission from the original author to take a look at the code and post a revised edition. Following further requests, he rewrote the plug-in available at **www.stevemonks.com/ksplugin**.

The final part of the equation for Steve was swapping his Aureon Fun 5.1 soundcard for an M-Audio Audiophile 2496 PCI card. He said the sound is now as good as his other components.

That's the second vote for the Audiophile 2496 card here, which, despite being several years old, remains a benchmark for many; they're still available from stores such as Scan (**www.scan.co.uk**) for around £50. I decided to implement Steve's plug-in on my own Windows XP-based media PC.

First I tried the onboard Realtek audio chipset with an optical S/PDIF connection to my DAC. Music played through Winamp using the default configuration was quite flat. Switching to the M-Audio Audiophile 2496 and a coaxial connection to the DAC greatly improved the imaging and dynamics, but it was still far from a decent hi-fi transport. Installing Steve's Kernel Streaming plug-in, however, transformed the quality. The sound-stage became wider, imaging more precise and details more apparent.

This was a great result for both the card and software. If you want to use an XP-based PC as a hi-fi front end, I can highly recommend picking up an Audiophile 2496 card and driving it with Winamp and Steve's plug-in. As always, we'd love to hear your audio, or other hardware stories. **PCW**



The M-Audio Audiophile 2496 PCI card may be several years old now, but still delivers great quality sound



Gordon Laing has been a hardware enthusiast since his first Sinclair ZX80 and as a former editor of PCW and contributor for over 10 years, what he doesn't know about technology isn't worth knowing.

→ Comments welcome on the Performance column.
Email performance@pcw.co.uk
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Quiet quandaries

Your definition of quiet may differ from that of cooler manufacturers

Quiet cooling continues to be a popular subject in the Hands On mailbox, but a recent message noted that some 'quiet' products are not as quiet as others and even reputable components may require a little configuration to operate as desired.

Brian Lawrence wrote to say: "For many years I have suffered the deafening noise from various cooling fans. After reading much in *PCW* about so-called quiet components, I replaced the PSU with a 400W Q-Tec Big-Fan 'low noise' model. This seemed to make little or no difference to the overall noise.

"I abandoned this project, but after reading that the noisiest fan in the box is probably the CPU cooler, I replaced the original Intel heatsink/fan supplied with my P4 2.8GHz, with a Scythe Shuriken Quiet CPU Cooler. This also made no difference and the fans still produce an unacceptable noise level.

"How can these manufacturers get away with calling their products 'quiet' or 'low noise' when clearly they are not? I would be interested in your views on whether it is possible to build a completely silent PC and if so, how?"

Noise levels are very subjective and what is quiet for one person may be considered noisy by another. Since there are no official guidelines as to what makes a PC component quiet, there is no way of telling how well a part will perform without trying it for yourself, buying from a trusted supplier, or checking reviews in magazines such as *PCW*. But there are a number of quality components available, which are considered by most to be much quieter than normal parts, although some may require specific installations to operate as expected.



Quality coolers such as the Scythe Shuriken can certainly operate very quietly, but only if instructed to spin slowly

Spin it down

Many cooling fans operate at their maximum speed unless otherwise instructed and even with so-called quiet models this can generate quite a racket. Higher-end CPU coolers such as your Scythe Shuriken are designed to be controlled by your motherboard and it sounds like your Bios settings are operating it at full speed.

If your motherboard has a four-pin CPU fan connector then it's capable of controlling the Shuriken within its Bios, so enter the Setup pages upon power-up and look out for the section that handles fan control – this will probably be labelled Hardware Monitor, but check your manual for details. Now ensure the CPU fan control is set to a quiet mode and it will automatically spin slower when you next start up.

If your motherboard is an older model or only has a three-pin connector, you may need to buy an additional control that works like a dimmer switch to manually adjust the fan speed – and therefore noise levels.

The Shuriken is a low-profile cooler, designed for the confines of a low-profile case, so won't perform as efficiently as a full-size model. So if you have a full-size case, a bigger model would be more appropriate. But the Shuriken should still be much quieter than your original stock cooler, so it sounds like it just needs to be told to slow down a little.

We can't comment on your particular PSU, but some models feature a control to adjust the fan speed. Even then, if the unit is not running efficiently due to a high load, it may have no choice but to run its fan quickly. We'd recommend investing in a unit reported as being quiet that will run efficiently given your PC's load. We've recently been impressed by Corsair's HX520W.

At this point it's also worth looking at your PC's environment. If its vents are dusty, the surroundings are warm or the case is in a corner with little airflow, and a load of papers sat on top, then its coolers will have to operate faster and more noisily than you hoped in order to keep things sufficiently cool. Indeed, forcing them to run slower could cause overheating.

These are all important points if you're attempting to assemble a quiet, or even a completely silent PC. Silent PCs are certainly possible by using hefty but fanless heatsinks and dampening enclosures for hard disks (or solid-state drives), but the heat generated by your components still has to go somewhere. Super-quiet PCs only work if there is sufficient cool airflow both internally and externally, or your system will overheat and become unstable.

If you're feeling inspired by the idea of a silent PC, check out specialist manufacturers such as Hush Technologies (**www.hushtechnologies.net**) and Tranquil PC (**www.tranquilpc.co.uk**). If you'd like to upgrade a PC or assemble one from scratch, we'd recommend visiting the QuietPC website at **www.quietpc.com**, which also gives advice on the best way to select, install and configure components. **PCW**

SOFTWARE LISTING

ON THE CD

5 FULL VERSIONS

Paragon Drive Copy 9 SE
novaPDF 6 Lite
Magix Website Maker 3
Syncplicity
Ashampoo Photo Optimizer 2

46 FREEWARE

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a-squared Free 4.0.0.21
AbiWord 2.6.6
ActionOnline 3 Lite
Advanced SystemCare Free 3.1.2
AppRemover 1.4.8
Ashampoo ClipFinder 1.53
Avira AntiVir Rescue System 3.5
Bonjour for Windows 1.0.6
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Defraggler Portable 1.06
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Floola 4.5
Forecastfox 0.9.8
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Lavasoft Ad-Aware Anniversary
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Mozilla SeaMonkey 1.1.14
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Shareaholic 1.4.1
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Spyware Terminator 2.5.1.028
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Task Coach 0.71.5
The Dude 3.1
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Transmute Portable 1.09
Uranium Backup Free 7.2
USBDeview 1.29
VirtualDub 1.8.7
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Windows Live Messenger 2009
Windows Live Suite 2009
WindowsPager 0.39
WinMerge Portable 2.10.4
WPanorama 9.2.2

12 FROM THE MAGAZINE

Aero Shake v1.3
Avidemux 2.4.3
Bandwidth Controller Standard 1.21
Bandwidth Monitor Lite 2.0.135
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HostsMan 3.1.57
Hugin 0.7.0
LogMeIn Hamachi 1.0.3
Microsoft PowerCalc
Photomatix Pro 3.12
UltraVNC 1.0.5.3

18 SHAREWARE

AuctionX2 1.1.0.68
Auslogics BoostSpeed 4.2.8.178
Axialis IconWorkshop 6.33
FinePrint 6.05
FontExplorer L.M. 5.7
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Microsoft Songsmith 1.0
Oront Burning Kit 2 Premium 2.62
REAPER 2.55
SiSoft SANDA 2009 SP2
SynchPST for Outlook 3.5.3
TBS Cover Editor 1.5.3
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Defense Grid The Awakening
Drakensang The Dark Eye
Iron Grip Warlord
Total Annihilation 3D 0.5.2

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USING THE COVER DISC

The PCW cover disc uses a web browser-style interface. To get full functionality, you'll need to use Microsoft Internet Explorer (version 5.5 or later). Unfortunately, Netscape doesn't properly support this software. However, we have also provided links to the featured programs, so you can still copy them to your hard disk or install them manually (the standard download dialogue box will appear). Programs can be found in the \software\ folder on the disc.

STARTING THE DISC

The CD-Rom (or DVD) should auto-start. If it fails to do so, double-click the CD-Rom/DVD icon in My Computer or open the terms.htm file on the root of the disc.

PROBLEMS?

We cannot give support on programs on this disc. If you have problems running the disc, follow these guidelines:



PROBLEMS INSTALLING/RUNNING THE SOFTWARE

Check the support page on the disc or check the manufacturer's site.

GENERAL DIFFICULTIES

For details on cover disc support and frequently asked questions about the discs go to **www.pcw.co.uk/disc-support** For faulty or damaged CDs/DVDs please email disc_support@pcw.co.uk for a replacement, giving the details requested on the website. If you have no internet access, call 020 7316 9706 between 10am and 6pm Monday to Friday. Please note that PCW cannot give technical help/support.

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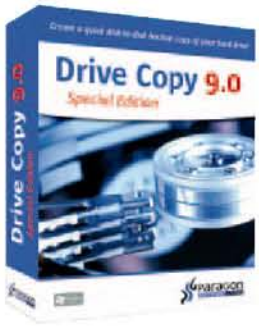
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Paragon Drive Copy 9 Personal SE

Quickly copy your hard drive or individual partitions to a new drive

Your PC's hard drive can be a major performance bottleneck, so upgrading to a faster model can deliver a significant all-round speed boost. But setting up a new system drive in a PC manually can take forever. You'll have to install Windows and all your applications on the new drive, download updates and transfer all your data. And that's before you move on to the really difficult bits such as setting up Windows and your apps to work exactly as they did before. It's a painful process that can drag on for weeks.

You can avoid all this hassle, though, by using Paragon Drive Copy 9 Personal Special Edition. Install the new drive, launch a Drive Copy wizard, and it'll be copying your system in seconds. Once it has finished you can switch your hard drives, reboot and enjoy a faster PC.

Of course life isn't always that simple. One of your hard disks might have a technical problem of some kind, or you might not want to copy the entire drive. But Paragon Drive Copy 9 Personal Special Edition can help there, too. The program provides tools to test drives, check file system integrity or scan for drive surface problems, for instance. You can create partitions on the new drive, if you'd like it to have a different structure, then copy selected partitions from your current system.

You can also use the program to schedule drive or partition copies, making it a handy backup tool. You can even create a bootable rescue CD, a potential life-saver if your PC won't start and you need to recover data.

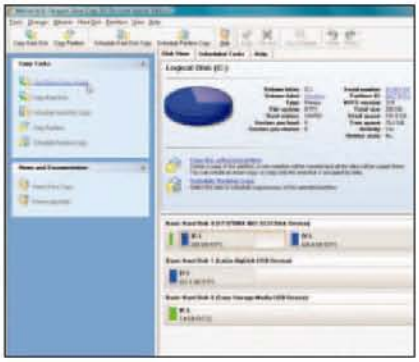
INFORMATION

System requirements Windows 2000 Professional/XP (32/64-bit)/Vista (32/64-bit), 40MB hard drive space

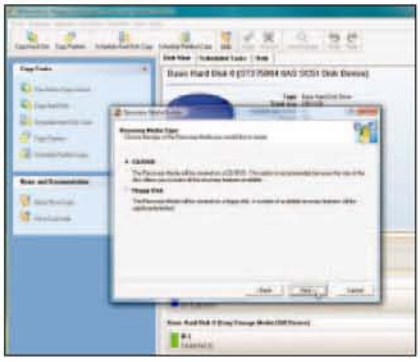
Contact www.paragon-software.com

Registration Follow the instructions during the setup process to receive your free product key, or visit www.paragon-software.com/registration/dc9se.html

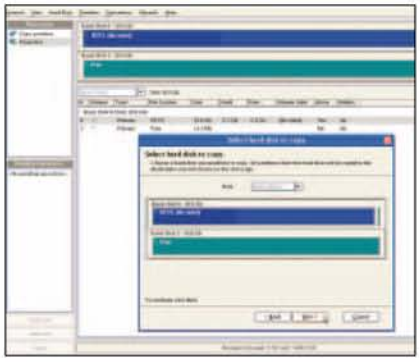
How to make an exact copy of your hard disk



1 If you just need a simple, direct copy of your system drive then click One Button Copy Wizard. Tell the program which drive you're copying, and where you want the copy to be written, accept the default copy settings (they're fine, though check the Help file if you need to know more) and wait as your system is cloned.



2 You can carry out more complex actions from the program, too, such as scanning for file system errors or copying selected partitions. But these may require a reboot. It's probably easier to perform these advanced tasks from the standalone version of Drive Copy, instead – grab a blank CD and click Tools > Recovery Media Builder to create it.



3 Reboot your system from the CD to launch the standalone version of Drive Copy. This will run far more smoothly now there are no more background processes using your hard disk. Right-click a drive to perform advanced tasks such as managing your partitions, or click the Wizards menu to create the duplicate drive you need.

UPGRADE OFFER

FEATURES

Powerful PC backup
Professional drive partitioning
Comprehensive drive defragmentation
Securely wipe hard drives
All-in-one hard drive management
Read NTFS drives on a Mac

SAVE 20% ACROSS THE PARAGON RANGE

Everyone who registers their copy of Paragon Drive Copy 9 Personal Special Edition will receive a coupon code giving a 20 per cent discount off any other product in the Paragon range. There are tools to defragment your hard drive, recover deleted files, encrypt confidential data, create and manage hard drive partitions, and back up your system. Visit **www.paragon-software.com** to find out more, but hurry – your coupon code will expire seven days after you register.



NovaPDF Lite Desktop 6

Create high-resolution PDF files from almost any Windows program

INFORMATION

System requirements Windows 2000/XP (32/64-bit)/ Vista (32/64-bit), 10MB disk space
Contact www.novapdf.com
Registration Get your free registration key from www.novapdf.com/free-registration.php?src=85

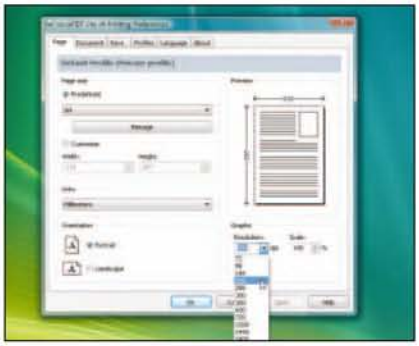
When you need to distribute documents to a wide audience it's important to choose a file format that can be viewed on just about any platform. It should be able to reproduce your original work in the highest possible quality. But if you're emailing the documents, or putting them online, then you'll also want them to be compact. This sounds like a case for using Adobe PDF files, and there's no easier way to create these than with a copy of NovaPDF Lite Desktop 6.

Install the program and it will add a virtual printer driver to your system. If you'd like to create a PDF file from any Windows application then all you need do is open the document in question, choose the Print option, and send it to the NovaPDF printer driver. You'll be prompted for a file name and the PDF file will be created and saved for you.

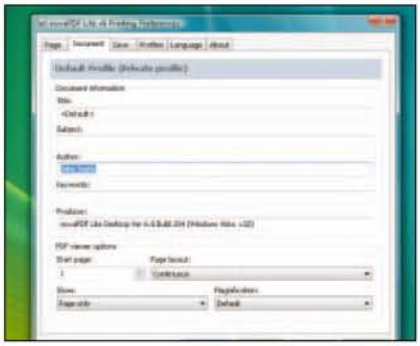
By default NovaPDF will produce PDF files at a resolution of 300 dots per inch (dpi), but you can tweak this if you like. Dropping the resolution to 72dpi will produce much smaller files, though with poor image quality; increasing it to 2,400 will produce professional print quality documents, although these will obviously be significantly larger.

And if you really want an easy life you can configure NovaPDF Lite Desktop 6 with a default folder and file naming scheme that it will use to create PDF files in future. After this click Print > Print and your PDF document will be written – it doesn't get any more straightforward than that.

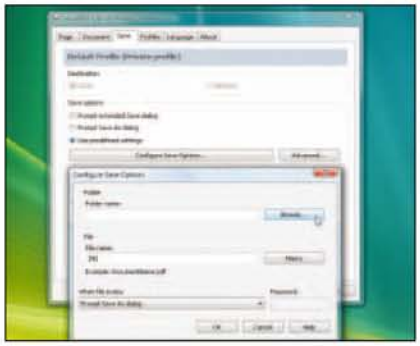
Produce the best possible PDF files with these novaPDF tweaks



1 Open the Control Panel Printers folder, right-click the NovaPDF icon and select Properties > Printing Preferences to view its settings. The first Page tab contains the Resolution option: you can set this to anything from 72dpi (low quality, but very small files) to 2,400dpi (wonderful quality, but the completed PDF file could be huge).



2 Click the Document tab and enter your name in the Author box to ensure people will know who created your PDFs (unless it's a secret, obviously). And if you're putting the document online be sure to complete the Subject and Keyword fields. Search engines index these values and it'll make it easier for people to find your work.



3 Click the Save tab. By default NovaPDF Lite Desktop 6 will ask you for a file and folder every time it saves a PDF file, but there is an easier way. Click Use predefined settings > Configure Save Options, tell NovaPDF Lite Desktop 6 exactly where you'd like your PDF files to be saved, and (as long as that file doesn't exist) save prompts will stop.

UPGRADE OFFER

NEW FEATURES

Embed required fonts
Create clickable PDF links
Supports PDF bookmarks
Add PDF watermarks
40/128-bit encryption
Send PDF via email

37% OFF NOVAPDF PRO DESKTOP

NovaPDF Professional Desktop includes all the Lite features, and adds the ability to embed document fonts for perfect portability. It also supports clickable hyperlinks, can automatically create PDF bookmarks based on document headings, and is able to enhance your pages with custom watermarks. The finished file can be encrypted for extra security, and automatically sent via email to your choice of recipients. The entire package is available for only £45, and you can place your order at **www.novapdf.com/free-registration.php?src=85**



Magix Website Maker 3 Deluxe

Create Flash-based websites quickly with this powerful online service

Whether you're looking to impress friends, share news with family or get your business more attention, creating a website is the obvious answer. At least until you consider what's involved: coming up with a layout, colour scheme, then learning about style sheets, DHTML, scripting, perhaps PHP and ASP, and that's just the start.

Website creation doesn't have to be so complicated, though. Magix Website Maker Deluxe could help you get an attractive site online in minutes, thanks in part to an excellent selection of predesigned site templates. There are examples covering sports, business, film, just about every topic and each one includes a selection of predesigned pages.

But these aren't the tired, dated old HTML templates in many 'easy website creator' tools. Magix Website Maker Deluxe creates colourful, stylish Flash-based pages with attractive animations and the results look professional.

Choose a site template from the list and you can customise it with your own text and images, along with Flash applets such as music players (there are more than 60 available), video players, photo slideshows, contact forms, guestbooks, visitor counters and more. There's 10GB of online space available so you can share files, while Google Adsense support means you can even make money from your work.

You can put your site online for free (**http://your-name.magix.net**), or upload it to your own domain. If you need a simple, attractive website this is worth a try.

INFORMATION

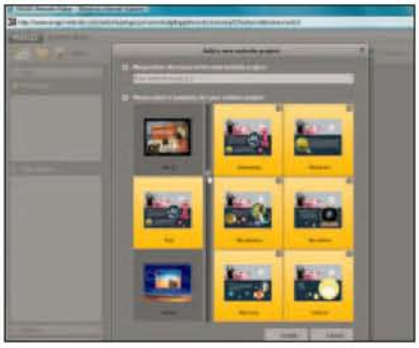
System requirements This online service should work with any modern browser that has the latest version of Flash

Contact www.magix-online.com/uk

Registration Sign up for your free account at www.magix.com/computer-active-2009

Need to know Your free Magix Website Maker Deluxe will expire 10 months after registration

Build eye-catching websites in three easy steps



1 After creating your free account (www.magix.com/computer-active-2009), point your browser at www.magix-online.com/uk, follow the login link, and click Website Projects > Add New Project. Choose the Advanced editing mode (it's still very straightforward) and browse the extensive list of site templates. Pick one and click Create.



2 The template now opens in the editing window. Double-click a text box and start typing your own content. Replace images by dragging in your own from the Objects > My Media list. Animations, shapes, visitor counters and other additions can be dragged in from the Objects menu, while the Pages menu helps you navigate through the site.



3 Click the Preview button to see how the site looks in your browser, then finish the job by clicking More > Settings and entering your website title, keywords, a description and more. Then click Publish and Magix Website Maker Deluxe will immediately put your site online, ready to share with the world at the your-name.magix.net URL.

READER OFFER

SUBSCRIBE TO MAGIX WEBSITE MAKER 3

Magix Website Maker Deluxe will host your site for 10 months after registration. Do nothing and you can continue to use a free version of the service, but this has fewer templates and multimedia objects, no Google Adsense support, and can only host your sites on the free **http://your-name.magix.net** domain. If that's not good enough then you can carry on with the Deluxe service for £3.99 a month. You can find out more or place your order at **www.magix-online.com/uk**.

Syncplicity

Automatically back up important files and access them anywhere

INFORMATION

System requirements Windows XP (32/64-bit), Vista (32/64-bit), 3MB disk space, internet connection

Contact www.syncplicity.com

Registration Sign up for your free account at https://my.syncplicity.com/Signup/?plan=free&token=VNUMEDIA

Need to know This account synchronises two PCs via 4GB of online storage. See the Upgrade offer if you need more.

If you've ever used two PCs to work on the same project then you will know that keeping them synchronised is difficult. All too often you'll finish an important document late at night on your home PC, but forget to take it into the office the next day. Disaster! And one that could easily be avoided if you install Syncplicity.

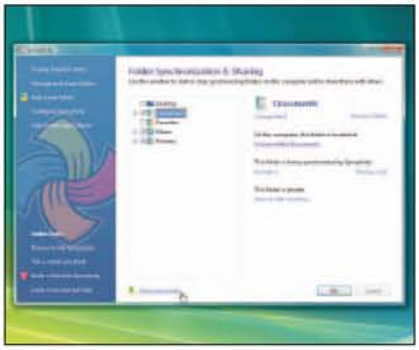
This clever tool starts by letting you configure exactly which folders you'd like to keep synchronised. By default this will point to your desktop, Documents folder and other system locations, but you can easily add a folder of your own, such as C:\WorkDocuments.

Once you've done that, Syncplicity will scan the contents of your specified folders and start uploading them to your account on its server. This happens quietly, in the background, so you don't have to think about it: just carry on working, as normal. When it completes the program will continue to monitor the folders, uploading new or edited files as they appear, so the online copies are always up to date.

Now install Syncplicity on a second PC (at work, say) and it'll check your online account, then download any new files it finds. And if you edit those files again they'll be uploaded to the Syncplicity server, and synchronised with your home PC when you turn it on. Now your most important documents are synchronised automatically, without having to do anything.

Syncplicity also works as a handy online backup tool, even if you never use a second PC. If your key files are accidentally deleted then it's easy to restore them from the online version.

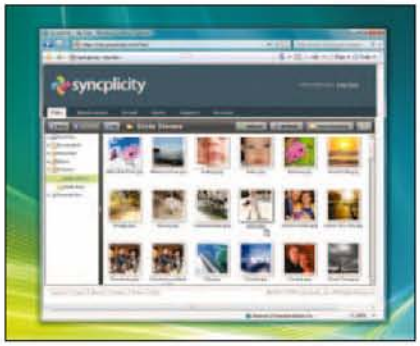
The three-step guide to hassle-free backup and file synchronisation



1 After you've created an online account and installed the client, you'll see a Syncplicity icon in your system tray. Right-click this, select Manage and Share Folders and check the boxes next to the folders that you'd like to back up and synchronise. You can add extra folders if necessary, but keep in mind there's a 4GB limit on this account.



2 Syncplicity will back up these files automatically, but you might want to change the bandwidth settings. Click Configure Syncplicity > Show advanced bandwidth settings to see the program's maximum upload and download speeds, then increase these for faster backups or decrease them for less interference with other web programs.



3 Repeat the process on a second PC and Syncplicity will automatically synchronise the contents of your specified folders. If you don't work on a second PC, or just want to use the program as a backup tool, log in to your account at my.syncplicity.com/files and you'll see your files that can be downloaded in a couple of clicks.

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NEW FEATURES

Unlimited PCs
50GB storage space
Add more space as required
Invite a friend, add 2GB

GET A 50GB SYNCPLICITY ACCOUNT

If our two-PC, 4GB account isn't enough for your needs then you can always upgrade. The standard individual subscription delivers 50GB of storage space, works with an unlimited number of computers, and is available for around £68 a year. Once you sign up you can get up to an extra 6GB of space just by persuading three friends to purchase Syncplicity accounts, or you can buy additional 50GB blocks for £68 each. If your company might be interested contact Syncplicity for its business pricing, and you can find out more at **http://syncplicity.com/Pricing.aspx**.

Ashampoo Photo Optimizer 2



INFORMATION

System requirements Windows XP/Vista, 14MB disk space
Contact Ashampoo www.ashampoo.com
Registration Leave 'Get full version key' checked during installation, or click Internet > Buy/Register > Obtain a FREE full version key

Choose an Image, click Optimize > Save, and that's it. Or click Optimize All to tweak everything in your folder at once

Digital cameras come packed with intelligent image processing technology which aims to deliver the best pictures. But this doesn't always work. Budget cameras may use a cheap lens that can't deliver the sharp pictures you'd like. Colour balance is often a problem, and very few cameras will consistently deliver the contrast you want across the full range of light levels.

You could try to fix these issues later in an image editor, but it's often a complicated business. If a picture seems lifeless should you increase the saturation? Or would the brightness do it? All too often you'll spend ages playing with sliders until you find something that looks better, and even then you won't be entirely sure that some other combination of tweaks wouldn't deliver better results.

Ashampoo Photo Optimizer 2 takes the hassle out of image optimisation by doing everything itself. Launch the program, point it at an image of folders, decide to optimise all the images or a select few, and it'll fix them all for you. Brightness, contrast, colour and sharpness problems are all addressed, leaving you with sharper, more vivid images, and usually in just a few seconds.

You can undo Ashampoo Photo Optimizer's actions even days or weeks later.

UPGRADE OFFER
ASHAMPOO PHOTO OPTIMIZER 3

Move to the latest version of Ashampoo Photo Optimizer and you'll find new features such as red eye correction, Explorer integration, and the ability to convert your images to sepia or black and white. The standard upgrade price is £6.99, but as a registered owner of Ashampoo Photo Optimizer 2 you only pay £5.59. Click Internet > Upgrade to Ashampoo Photo Optimizer 3 to place your order.

Conceptdraw Mindmap 5 Pro



INFORMATION

System requirements Windows XP/Vista, 61MB disk space, 1GB Ram
Contact www.conceptdraw.com
Registration Point your browser at www.conceptdraw.com/registration/mm5special.php?iml_uk

Conceptdraw Mindmap's prebuilt templates will get your brainstorming sessions off to a speedy start

Whether you're writing a report, planning a presentation or organising a big family event, the most difficult task is always figuring out how to get started, especially when your mind is as blank as that first empty page. Sounds familiar? Chances are you'll benefit from Conceptdraw Mindmap, a charting tool that's the perfect brainstorming aid.

If you need to deliver a business presentation, say, then you might start with a mind map based on the 'Preparing for a lecture' template. Immediately you'll see a chart with the 'preparing for a lecture' goal at its centre, and associated tasks connected to that: 'analyse audience', 'prepare speech' and so on.

You may not have thought about these issues, and so a task such as 'prepare for questions' may spark some new ideas. What questions can you ask? If you think of one click the 'Prepare for questions' box, press the Ins key to add a new box, and type the question.

Adding more questions should give you ideas for your presentation. So now you can click the 'Prepare speech' box and begin adding speech topics there. And so it goes on, with an idea in one place firing off others elsewhere.

The mind map steps can be annotated with text notes, hyperlinks, then exported as images or web pages, ready to share with others.

UPGRADE OFFER
CONCEPTDRAW MINDMAP 6

The latest version of Conceptdraw Mindmap 6 can export your mind map as a Powerpoint outline or map/slideshow, for an easy way to create professional presentations. It's easier to create multi-paged mind maps. Topics within a map can have multiple symbols attached to them, you get a new Strategy Map template, and there have been various improvements in both performance and reliability. A single-user licence costs £139 (though discounts apply if you're buying five or more) and you can place your order at **www.conceptdraw.com**.



Tim Nott is a full-time freelance journalist. When he's not writing about Windows and word processing, he tackles many other diverse subjects. He currently lives in France with his wife and family.

→ Comments welcome on the Windows column.
Email windows@pcw.co.uk
Please do not send unsolicited file attachments.

Heavenly hosts

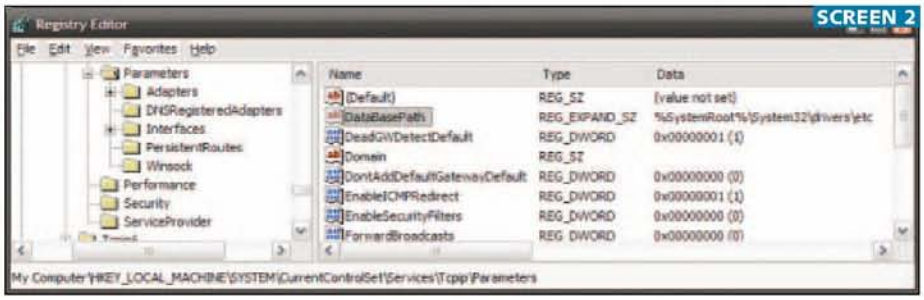
How to use the Hosts file to resolve IP issues; and a look at some Windows 7 features

A Domain Name System (DNS) server translates domain names, that you and I can understand, such as **www.google.com**, into IP (Internet Protocol) addresses that identify computers on a network. There are two versions of these addresses. IPv4 consists of a 32-bit binary number (ie a string of 32 ones or zeroes), but these are usually written as four groups of 0-255 decimal numbers separated by dots – eg 208.69.34.231. This yields a little under 4,295 million combinations and I'm sure there's a spurious quote somewhere about this being 'enough for anybody', but for comparison that figure is roughly two-thirds of the world's population. Worse still, some blocks of IPv4 addresses are reserved. Experts believe we will run out of IPv4 addresses some time in 2010.

So welcome IPv6, which uses a 128-bit binary number, usually expressed as eight groups of four hexadecimal digits separated by colons. This yields addresses totalling around 34 followed by 37 zeroes, which, I dare say, should be enough for anyone.

You can find the IP address of a website with the Ping command. Open a command prompt, and type 'ping www.google.com'. This will return the corresponding IP address (see screen 1). You can also see the domain name by typing 'ping -a' followed by an IP address.

There's another way of resolving domain names to IP addresses, which doesn't require the ministrations of a DNS server. This is the Hosts file on the PC itself, which in Windows XP and Vista is located at windows\system32\drivers\etc\ with the name Hosts and no extension. This location can be changed, so check by running the Registry Editor and going to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters where the actual location is given in the string value DataBasePath (see screen 2). You need to be logged on as an administrator to do this.



Log on as admin to check the location of the Hosts file

The Hosts file can cause problems, but it can also be used to protect your computer against malware. Open the Hosts file in Notepad and you'll notice it contains several lines of comments. Following these, there may be a two-column list with IP addresses on the left and names on the right. In XP there's just one line that reads:

```
127.0.0.1       localhost
```

Vista adds:

```
::1             localhost
```

which is the IPv6 equivalent.

Although IP addresses are unique, this only applies to a particular network. If you're part of a peer-to-peer network your PC will probably have an IP address of the form 192.168.1.xxx, and the 'local host' of a computer is always 127.0.0.1. Any other entries will direct requests to the domain name in the right-hand column to the IP address on the right, and this takes precedence over a DNS server look-up. In screen 3 we've directed requests for **www.google.com** to the IP address of **www.vnunet.com**. If you want to try this you might need to clear your browser's history and restart Windows for the redirection to take effect.

Although our example is not harmful, it does show the possibilities for malicious attacks. Your online banking, for example, could be diverted to a faked phishing site. Fortunately the Hosts file can also be used to suppress malware and annoying pop-up adverts by redirecting requests to the offending servers back to the local host. For example:

```
127.0.0.1   123topsearch.com
```

will redirect requests to 123topsearch.com to the local machine, meaning nothing will happen. The Microsoft Most Valued Professional site provides a ready-made Hosts file that you can download from **www.mvps.org/winhelp2002/hosts.htm**. This comes with a batch file to update the existing Hosts file, but if you are using Vista you will need to run this from an elevated command prompt. Another way – which automatically updates

Get an IP address with the Ping command



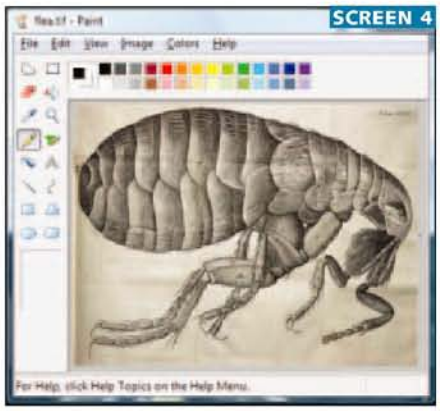
SCREEN 3

```
# Copyright (c) 1993-1999 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host
name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97     rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host

127.0.0.1       localhost
62.140.213.250  www.google.com
```

Here we've redirected requests via the Hosts file

SCREEN 4



Paint: perfectly preserved since Windows 95

itself – is to install the free Spybot Search and Destroy 1.6 utility, which you'll find at **www.pcw.co.uk/downloads**. This redirects spyware, adware and other threats from the Hosts file back to the local host.

Another popular alternative is Hostman, which you'll find at **http://tinyurl.com/7wk7s2**. This lets you enable, disable and edit the Hosts file as well as update it from a choice of sources, including the previously mentioned MVPS site.

Seven-up

Windows 7 is officially scheduled for January 2010, but some Windows-watchers predict an earlier launch, with the January date being kept as a fallback.

Leaked screenshots show a radical makeover to some of the Windows applets. You'll find some news on the Wordpad update in this month's Word Processing column, but it looks as if Windows Paint will also be getting a paint job.

Apart from some new file formats – ICO, PNG and TIFF – added in XP, and enhancements to the common Open/Save dialogue, the Vista version of Paint is functionally the same as the Windows 95 one (see screen 4). The version of Paint seen in pre-beta 'Milestone 3' Windows 7 is very different, with a ribbon interface like Office 2007. At the time of writing we are not permitted to show you a screenshot, but by the time you read this there should be plenty available from a web search as the official Beta 1 will have been released.

Whether Paint will have any enhanced capabilities remains to be seen, but it has always been something of a lame duck, so there is plenty of room for improvement. Even back in Windows 3 days Paintbrush, as it was then, couldn't change the start-up screen as it didn't support the RLE format (for that you needed something like Paint Shop Pro). This is still around and has come a long way from its humble shareware origins: it's now in Version X2 and is part of the Corel stable. However, there is no shortage of cheap or free image-editing programs. We've long been fans of Irfanview, which can handle a huge range of file formats and has a good range of image enhancements and special effects.

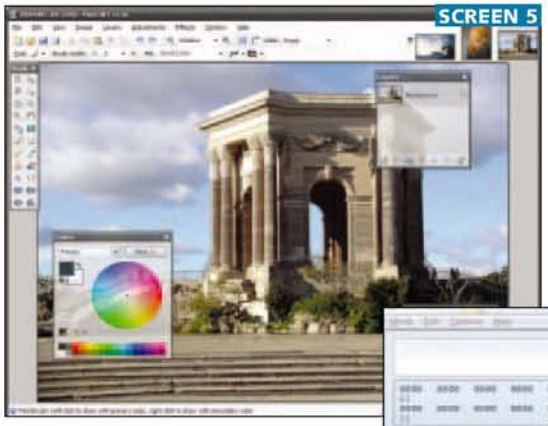
More recently we've been very impressed by Paint.net 3.36 (see screen 5). This has an even more impressive set of effects, supports layered images, transparency and has a seemingly limitless 'history' feature to undo changes. There are also some excellent interface features – you can work on multiple images from tabbed thumbnails, and the floating tool palettes are transparent so they don't obscure the image. Although the brushes and selection tools are a little crude, there is a huge range of plug-ins and online tutorials available. If you're attempting any form of image creation or manipulation it's well worth a try; it's free on the *PCW* downloads site.

The Windows Calculator is sufficient for my needs, but for those who require more Microsoft has been generous. The XP Powertoys Calculator offers graphs of functions (**http://tinyurl.com/2meyw**) and Calculator Plus (**http://tinyurl.com/4lxa3**) adds unit and currency conversions to the standard calculator. A leaked version of Windows 7 calculator we looked at (which works with Vista but not XP) adds Programmer and Statistics modes, plus unit conversions and date calculations (see screen 6).

Shake it all about

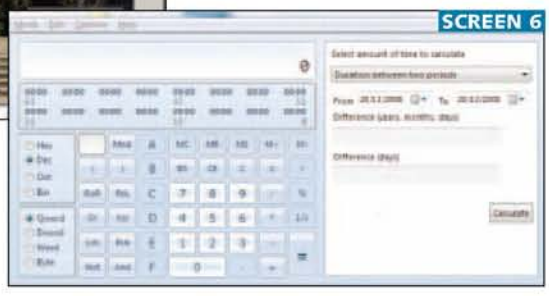
Another, weirder Windows 7 Milestone 3 feature is 'Aero Shake'. Clicking and holding a window by its title bar, then shaking the mouse minimises all other Windows. If you want to try the experience, download the free Aero Shake from Lifehacker. At the time of writing it could be found at **http://tinyurl.com/5vydyx**. There's no installation required, just run the .exe file. It's strangely satisfying to pick up a window and give it a good shaking and the program manages to combine state-of-the-art technology with nostalgia – if you want to change the number and size of shakes required, then edit the Aeroshake.ini file and restart it. **PCW**

SCREEN 5



Paint.net is free and much better than Windows Paint

SCREEN 6



Windows 7 calculator – allegedly

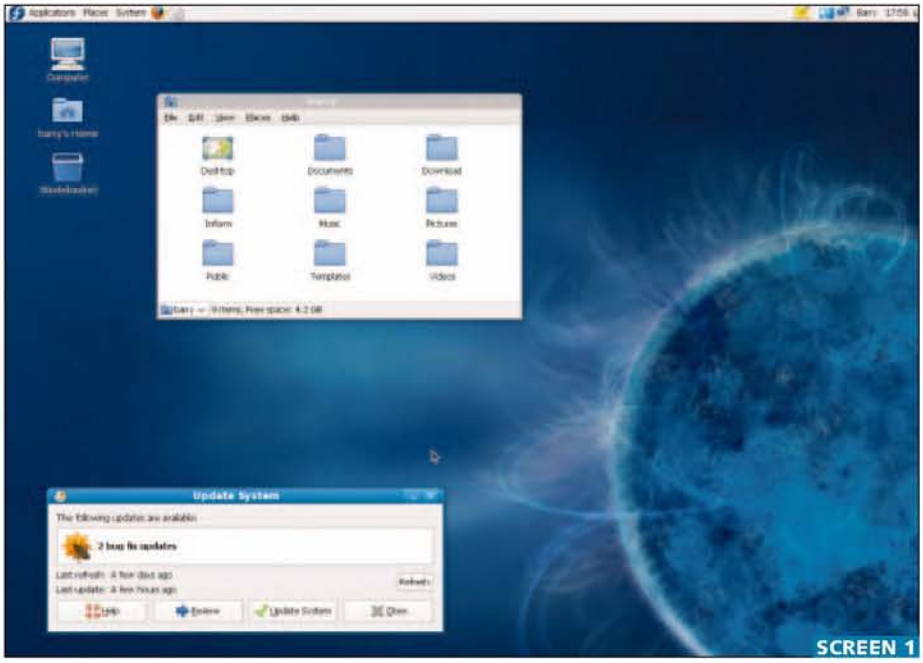


Barry Shilliday has worked with computers for almost two decades. By day, he is a Linux and Unix consultant, but in his free time he prefers to travel the world – and snap it with his camera.

→ Comments welcome on the Linux/Unix column.
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Fedora 10 put to the test

The new version of this Linux distro is polished and ready to take on Ubuntu



The look of the Fedora 10 Gnome desktop has improved

After a short and unexpected delay, Fedora 10 was released at the end of November last year. This Linux distribution arrived along with several other new versions of the major distributions: Ubuntu 8.10, Mandriva 2009, and most recently, in late December, Opensuse 11.1. In the early days of Linux, distributions varied widely in what they offered and who they were aimed at, but today the list of what they have in common tends to be much longer than how they differ.

Ubuntu is the distribution people predicted Fedora would be. From its Red Hat roots, Fedora inherited a huge legacy, both in brand recognition and the installed base of earlier versions. However, Fedora was most often viewed as a testbed for Red Hat's commercial Enterprise offering and inspired little enthusiasm from the open-source community. With Ubuntu's easy-to-use approach, the excellent APT-based (Advanced Packaging Tool) software management system, and a polished and well-presented Gnome desktop, this distribution soon came to dominate the free Linux world.

In recent releases, Fedora has begun to fight back. Many of the new features included in Ubuntu releases are created by Fedora developers; this includes the popular NetworkManager and much of the PulseAudio sound system. Fedora has always been strong in development and has often been a little more cutting-edge and experimental with new software than other major distributions, and this continues to be the case.

What's new?

The natural comparison for Fedora 10 is Ubuntu 8.10. Both are based on the same version of Gnome (2.24) and have the same kernel (2.6.27). To that end, on the surface they are indeed very similar. Fedora does come out ahead of Ubuntu in some areas; for instance, the powerful office suite, Open Office, is at the newest version of 3.0 in Fedora, while Ubuntu lags behind with the slightly ageing 2.4 series. Fedora has also worked considerably on PulseAudio, promoting a new 'timer-based' rewrite that provides much enhanced performance and lower power requirements. And sticking with multimedia, the desktop will now search available software repositories for required codecs, similar to Ubuntu, and offer to install any that are found.

Another area in which Fedora differs, and one that is instantly obvious, is the appearance of the desktop (see screen 1). Ubuntu has had little development in this area since its first release, while Fedora has gradually improved its look. The latest version has an attractive new theme, with a backdrop representing a solar flare. The developers have also introduced a brand new feature, known as kernel mode switching, which moves some of the graphics control into the kernel instead of the X.org windowing software. On supported hardware this means a smooth progression from boot-up to the desktop, without any flickering. Although hardware support is currently fairly limited, it should improve with subsequent releases, and it is certainly a more polished way to start up the desktop.

Availability

Fedora 10 can be installed in a number of ways. The most popular is to install from a 'live CD', where you boot directly into the desktop from the CD and install from there. There are both Gnome and KDE versions available,

Complex tasks made easy with Gnome Do

A small utility that is starting to get lots of popular attention is Gnome Do. This oddly named piece of software lets you perform sometimes complex tasks with just a couple of keyboard strokes. For instance, you can enter part of a file name, and from there perform a variety of tasks on the matched file, including opening it, moving or renaming it. You can also enter a Firefox bookmark or any URL and have Firefox launch and access that site.

A very useful feature is the ability to launch an application quickly by typing part of its name. It can easily be extended too; a variety of plug-ins come as standard to enhance the features, all of which can be enabled or disabled at will. One plug-in lets you quickly upload images to the Imageshack hosting site, returning the URL to you ready to use.

To launch Gnome Do, press the 'super' key (mapped to the 'Start' key) and the spacebar together. Type whatever you wish (such as a URL, a file name, an application to launch, etc). and then perform the action, or press the Tab key to decide which action to perform. If you match the name of an image file, you could decide to open this, upload it to Flickr or to Imageshack. The utility is available directly from the Ubuntu and Fedora repositories.



Launch applications and perform lots of useful tasks with Gnome Do

for 32- and 64-bit architectures. The KDE disc, or 'spin' as it is known, provides a KDE 4.1 desktop, though I would not recommend this for general use yet. The standard Gnome spin installs a set of applications similar to Ubuntu 8.10's live CD, although you receive the lightweight Abiword word processor instead of the full Open Office suite. This is due to space constraints on the CD.

Alternatively, you can download a DVD image that contains both desktops and a much larger range of applications. Installation by this method is almost identical, except rather than booting into the desktop, you boot straight into the graphical installation program alone. Another benefit of installing via the DVD is that you can download all available updates at the time of installation, so that these are installed and ready the first time you boot your newly installed system. Doing this simply requires the box marked 'Fedora Updates' in the installation screen to be ticked.

Taking this into consideration, I would recommend the DVD installation method over the live CD, especially if you expect to install more than one copy. The live CD is ideal for having a look at Fedora without any commitment; you cannot run the desktop live from the installation DVD. The improved range of applications comes in handy too: if you choose to install the Gnome desktop, this method of installation provides Open Office.

RPM Fusion

With some software having restrictions on distribution, freely available Linux distributions often cannot provide everything you need on the installation media. Ubuntu partially gets around this problem with its 'multiverse' software repository, which contains a large amount of software affected in this way. Fedora has no such repository and, as such, would be too limited for most people. To get around this, three unofficial repositories were set up, the most popular of which was 'Livna', which has been mentioned several times before in this column. The three repositories would sometimes provide different versions of the same software; ultimately not very productive, but with Fedora 10's release, these have all merged into 'RPM Fusion' (**www.rpmfusion.org**).

The first thing to do upon installing Fedora and applying its updates is to enable this repository. Head over to **http://rpmfusion.org/Configuration** to download the 'free' and 'nonfree' files. The setup process is automated, only requiring confirmation a few times about changes to the system. Once done, you will have access to various drivers (such as the Nvidia and AMD proprietary graphics drivers) and all necessary multimedia codecs.

One important package not included in RPM Fusion is Adobe's Flash plug-in. The way to install this will be familiar to Windows users. Just head to the Adobe website and download the plug-in marked 'RPM for Linux'. You can have Firefox install this directly, or save the download and click on it to do it yourself.

Fedora versus Ubuntu

Fedora 10 is a polished and attractive desktop, and offers some advantages over its closest rival, Ubuntu 8.10. Its up-to-date software may provide useful features to many people, although this could also mean less stability compared to more tested software. For beginners, Ubuntu is still undoubtedly the best choice, but for anyone willing to experiment a little and try out alternatives, Fedora 10 is certainly worth a shot. **PCW**

BBC iPlayer downloads available for Linux users

The BBC is now supporting iPlayer downloads for Linux, which is great news. Previously this was available only to Windows users.

The new player runs with Air, which Adobe released for Linux in December. At the time of writing, to set it up you had to mark yourself as a BBC Labs 'tester' by accessing **www.bbc.co.uk/iplayer/labs** and then click to download any programme via the usual iPlayer website. You must have the latest version of Flash, which can be downloaded from Adobe's website for Ubuntu and Fedora systems. The installation of Air and the BBC iPlayer application is fully automatic through Firefox.



Linux users can now download BBC television programmes with the iPlayer application



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Master panoramic pictures

How to combine multiple shots into one impressive scene

Situations where I take one photo of a scene are becoming increasingly rare. Regular readers will know I'm a keen panographer and, unless you have some very specialised equipment, panoramic photography requires several overlapping images from which a super-wide angle composite is produced.

But digital technology has led to the emergence of all sorts of other applications for multiple images. High Dynamic Range (HDR) images are produced from several shots of the same scene using bracketed exposures, object panoramas combine multiple shots of a rotated object to produce a virtual image in which it can be viewed from any angle, and Adobe Photoshop Elements has a recently introduced feature that lets you combine the best bits from several group photos; so now everyone's smiling, no-one has their eyes closed and if somebody wants to make horns with their fingers behind somebody else's head, they need to be pretty persistent.

In this month's column I thought it would be interesting to look at, albeit briefly, some ways you can make one great image out of several, well, not so great ones. I've covered some of these techniques in more detail in earlier columns, but if there's anything you'd like me to go into in greater depth in a future Hands On drop me an email and let me know.

Panoramas

There are two ways to produce panoramic images, the quick way and the slow way.

If you opt for the quick way (see screen 1) you hand-hold the camera and take a few overlapping shots, then use the panoramic stitching feature in your image editor to create a seamless panorama. Fewer photo-editing applications now seem to support panoramic stitching, but Photoshop Elements 7 does a superb job of it.



The quick way: Adobe Photoshop Elements 7 creates superb panoramas with very little effort

The slow way (see screen 2) requires a special panoramic camera head, costing from around £400 upwards, that rotates the camera without introducing parallax errors. You'll also need specialised stitching software, such as Autodesk Stitcher (**www.autodesk.co.uk**) or one of the Panotools-based GUIs such as Hugin (**www.hugin.sourceforge.net**).

It's more expensive, and requires more skill, experience and effort than the quick way. You can, however, produce flawless 360° interactive virtual reality images using Quicktime or Flash-based panorama players. You can get a good idea of what's possible with the various hardware and software setups at the worldwide panorama site (**www.worldwidepanorama.org**).

Object panoramas

Object panoramas provide a 360° rotation of an object. They are typically used on e-shops to show products. To produce one, you need to place the object on a turntable and take photos at, for example, 20° increments, through 360°.

HDR

High Dynamic Range images capture a wider range of tones than is possible in a single shot by compositing several bracketed exposures of the same scene. HDR files store a vast amount of tonal information in 32-bit floating point files. This information is then tone-mapped to produce an eight- or 16-bit file. You can produce HDR images in Photoshop, Paint Shop Pro, or a specialist HDR application such as Photomatix (**www.hdrsoft.com**) or Enfuse, which creates tone-mapped images without producing HDR files (**http://enblend.sourceforge.net**).

Fake depth of field

You can fake a limited depth of field effect in any photo-editing application that supports layers and has a blur filter. I showed how to do this in detail way back in August 2004. Strictly speaking it isn't a multi-image effect because you can do it with several versions of the same image. By creating several image zones and applying different degrees of blur, you can achieve very realistic results and literally focus attention on your subject.

Photoshop Auto Blend Layers

If you own a copy of Photoshop CS4 you can deal with the opposite problem to the one above – limited depth of field. If you shoot in low light or are keen on macrophotography you'll have frequently experienced this problem, where you can't keep all of the subject in focus.

Photoshop CS4 has two smart tools that, used together, can create a single pin-sharp image from several blurry ones (see screens 3 and 4). The key to success is to take several shots, changing the focus point in each so every part of the subject is in focus in at least one of the shots.

First, Auto Align Layers superimposes each image on its own layer in exact register with those above and below – it even works with hand-held shots. Next, Auto Blend Layers produces a layer mask for each layer, masking blurred image detail and revealing only what's in focus. The result is an image in which every part of the subject is pin sharp. You can even edit the layer masks to selectively re-introduce some blur .

Elements Photomerge

If there's one application that covers all the bases where multiple shot editing and creativity is concerned, it's Adobe Photoshop Elements 7. Its Photomerge features are split into three tools – Group Shot, Faces and Scene Cleaner.

Group Shot works with anything up to 10 photos. If your camera has continuous shooting, use it to take group shots; depending on the model it will take anything up to around five frames per second while you hold down the shutter release. You can then load them into Group Shot, select the best one and add bits in from other photos, replacing people who don't look their best in the base shot with versions from the other photos. This is very simple to do with a neat pencil tool. Scene Cleaner uses the same principle to replace unwanted elements – a car, background strangers, anything that moves and isn't in all your shots.

Faces is of less practical use, unless you have a pressing need to combine facial elements from different people, but it's fun nonetheless. Photoshop Elements 7 also has a very effective panoramic stitcher called Photomerge Panorama. Give it several overlapping shots taken in rotation and it will automatically stitch them into one seamless ultra-wide angle view.

The slow way: 360° VR panoramas are produced from stitched equirectangular images such as this one

SCREEN 2



Layer montage

As well as underlying every other technique described here, layers provide the most versatile and creative ways of using multiple shots.

There are hundreds of ways you can make use of layers to improve existing images and make new ones. You can duplicate a background layer and use blend modes to improve image quality and create effects, retouch on a separate layer using a cloning tool, apply effects filters to a duplicated background layer and merge the result with the original. Layer masks and adjustment layers extend the creative potential further still.

Noise reduction

If you shoot long exposures at high ISO settings (common if you do a lot of night shooting or astro-photography, for example) and you're obsessive about noise reduction (something that often happens to people who spend a lot of their time shooting exposures of several seconds or even minutes at ISO1600), then you probably already know about shooting dark frames.

A 'dark frame' is a second exposure, identical to the first, made with the lens cap on. Anything that shows up in this image can be used as a mask layer to eliminate noise in the first image.

Using Photoshop CS4 you can combine several unsharp images (left) to produce a single sharp one (right)

SCREEN 3



SCREEN 4



Many modern cameras implement dark frame noise reduction internally, but it's worth knowing how to do it manually. Many older cameras don't have any form of noise reduction and even those that do often implement it only for a limited range of settings.

Live Labs Photosynth

I first wrote about Microsoft Live Labs Photosynth in the December 2006 issue of *PCW*. Photosynth is one of those things that's hard to describe but easy to understand when you see and use it. You can get a first-hand look and try out Photosynth at **www.livelabs.com/photosynth**.

Before you do, it's worth watching Blaise Aguera y Arcas' demo of Photosynth, in which he talks about his involvement in it on the TED website (**www.tinyurl.com/6999xr**).

What Photosynth creates is a little like a VR panorama, but because it can use images from a variety of sources, for example photo-sharing sites such as Flickr, it has a far broader scope. Essentially, Photosynth arranges collections of photos taken at one location in a 3D virtual space.

It's even more immersive than a conventional VR panorama because images are taken from more than one location and so you're not rooted to the spot. You can move around within a scene, walk around corners and zoom in on detail without losing resolution.

It's disappointing Microsoft hasn't really made a lot of progress on the collaborative potential of Photosynth in the two years plus since I last looked at it. The interface is slicker and there are plenty of projects containing up to a hundred photos taken by individuals, but it would be really exciting to walk through a Photosynth landscape created from thousands of photos of, for example, the Pyramids at Giza. **PCW**



Tim Nott is a full-time freelance journalist. When he's not writing about Windows and word processing, he tackles many other diverse subjects. He currently lives in France with his wife and family.

→ Comments welcome on the Word processing column.
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What's up, DOC?

How to deal with the knotty problem of when documents fail to open

Double-click on a Word .doc file in Explorer and it will launch Microsoft Word and load the document. Except, of course, when it doesn't. This month's mail brought two versions of the problem. In the first, Word 2003 would load, but the document would not – the application just presented an an empty screen, but opening the same document from the File menu worked normally.

The other occurrence was with Word 2007, which flashed up error messages reporting its inability to find various folders and files and ended up with an empty instance of Word. Again, File, Open worked normally.

This problem is usually caused either by a macro or an add-in, so here's a brief checklist to try in both versions. First, as this involves system changes, make a System Restore point. Next, tackle the macros – Word 2003 version first. With the problem document loaded from File, Open, go to Tools, Macro, Macros, make sure 'Macros in:' is set to 'All active templates and documents' and look for a macro named Autoopen or Autoexec. If found, select it and click the Edit button. Change the first line `Sub Autoxxx` to `Sub OldAutoxxx`

Close Word, agree to changes in the template, then try opening a .doc file from Explorer.

In Word 2007 turn to the View ribbon, click on Macros, then View Macros to do the same as above.

If this doesn't solve the problem restart Word. In 2003, go to Tools, Templates and Add-ins and turn to the Templates tab. In the Global Templates and Add-ins section click on each item in turn, make a note of its location – shown below the list – and click Remove. In 2007, this is trickier. Go to Word Options, and under 'Popular' make sure 'Show Developer tab in the Ribbon' is ticked (see screen 1). OK out of Options and turn to the Developer ribbon. Click on 'Document Template' and proceed as per Word 2003. Close Word, OK changes to the template, and in Windows Explorer, go to C:\Program Files\Microsoft Office\Office11 (or Office 12 for 2007)\Startup. Move the contents of this folder to a temporary location.



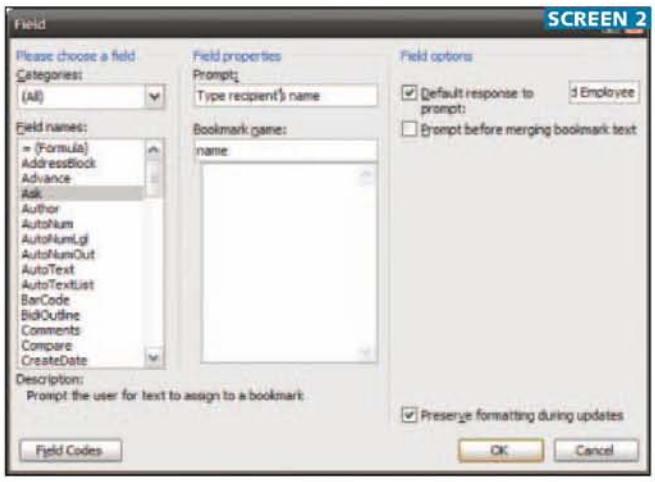
How to show the Word 2007 Developer ribbon

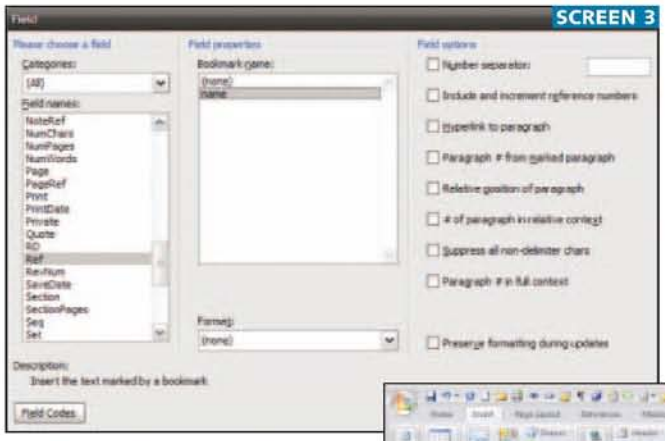
Next you need to use two start-up switches that are not documented in the help file. Click the Windows Start button, then Run, then type 'winword.exe /u'. If you get an error message try again using the full path. Apart from some disk activity nothing will appear to happen and Word will not start. This removes the existing – and possibly erroneous – Registry entries for Word. Repeat the exercise using the /r switch. This will restore the correct Registry entries. You'll get a message that Word or Office is being configured and eventually Word will start. Close Word and .doc files should load normally in Explorer. Finally, go back and reinstate the Startup items, add-ins and macros one by one to pinpoint the source of the problem.

Yet more bookmarks

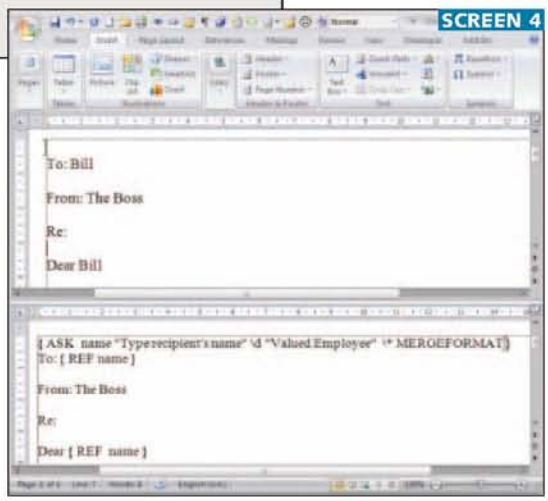
Over the past two months we've looked at bookmarks and what you can do with them. Here's another simple automation trick that combines bookmarks and fields to prompt for text that you want to appear several times in the same document. First, insert an Ask field; in Word 2003 and

Filling in the Ask field





Inserting a reference to an Ask field



Different views of the same document

earlier Insert, Field, Ask, and in Word 2007 Insert, Quick Parts, Field, Ask. This will give you the Ask field dialogue (see screen 2).

You need to supply a bookmark name, some prompt text and, optionally, a default response. If the last is more than one word it needs to be in double-quotes. OK out. The field will spring into action for a practice run.

Now you need to create more fields in which the text entered in response to the Ask field will appear. Each of these needs to be a Ref field pointing to the bookmark created by the Ask field (see screen 3). It helps with updating if the Ask field is placed before all the Ref fields. With all the fields in place, make sure you're in results view (ie seeing what would be printed) rather than field codes view – you can toggle between the two with Alt & F9. Press Control & A to select the whole document, then F9 to update the fields. The Ask box will appear, with the default response (if it exists) in place. Type in the new text, then click OK. You'll see the text you just typed appear at the location of all the Ref fields.

Our screenshots show a very simple example, but there are all sorts of other uses and you're not limited to one set of Ask and Ref fields.

It's useful to be able to see field codes and their results at the same time. You can do this with the Window, Split command (on the menus in Word 2003 and earlier, and on the View ribbon in 2007). You can then set codes or results independently in each pane as well as showing/hiding formatting marks and bookmarks (see screen 4).

Wordpad revisited

Wordpad made its debut in Windows 95. In the ensuing 13 years its feature list and interface has stayed perfectly preserved. It has, however, kept pace with changes in the .doc (but not .docx) file format.

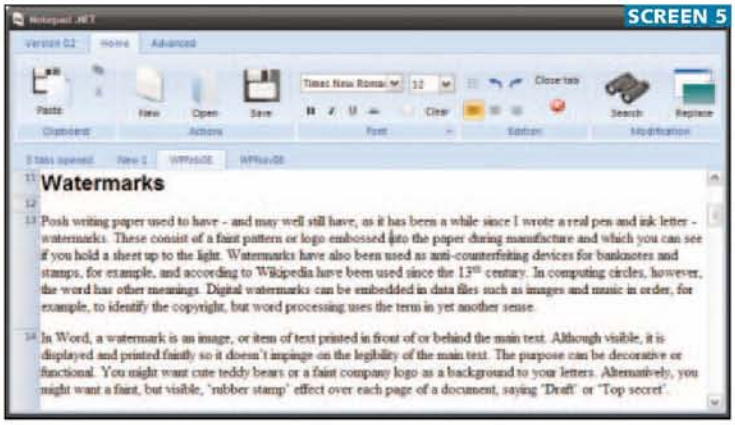
The current pre-beta build of Windows 7, aka Milestone 3, has a new version of Wordpad which is not only compatible with Microsoft DOCX and Open Office ODT formats, but has also had an interface makeover. This features a ribbon in Word 2007 style, and the very nifty zoom slider that graces the latter's status bar. I got my hands on a shareware clone named Wordpad 2009, which had all the features of the Windows 7 Wordpad, except the zoom slider. It also had one important addition – the ability to edit multiple documents in separate tabs.

Alas, while I was writing this column, the developer of Wordpad 2009, Solo-Dev, pulled it. It transpired that his creation bore too close a resemblance to an earlier application called Notepad.net, which you can find at **http://tinyurl.com/7k3ka4**. This too, has a multi-tabbed interface, and will also produce formatted RTF (see screen 5). Solo-Dev has promised to create a new 'from scratch' version of Wordpad 2009, so look out for it.

Save ink, save the world

In the 1900s, King Camp Gillette came up with the idea of selling his safety razor cheaply then cleaning up on the sale of replacement blades. Unlike some of his other ideas this marketing model survives today. You can buy a new colour inkjet printer for less than £25 or a black and white laser for less than £50. These generous offers rely on the fact that you are going to spend a lot more than that, during the life of the printer, on ink or toner cartridges. So, any saving you can make on the consumption of the latter is going to be good for your wallet – not to mention the planet.

A Dutch company called Spranq has designed an Ecofont, which uses up to 20 per cent less toner or ink than normal printers. It works by drilling holes in the letters and gives the best savings at larger sizes. It's free at **www.ecofont.eu/ecofont_en.htm**. I take the claims with a pinch of salt. Unless you set your entire document in large size Ecofont, you won't see the entire saving. But if you do so, you'll use more ink than you would using a smaller size. There are other common Windows and Microsoft Office fonts that demonstrate economy compared with the ink-guzzling Arial Black. Still, the Ecofont itself is rather fun and raises an important issue. **PCW**



An alternative to Wordpad



Stephen Wells is a freelance journalist and a regular contributor to computer magazines. He's been writing PCW's Spreadsheets column for over 10 years.

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Remembering the members

How to manipulate Autocomplete, Autofill and more

The entry for the oldest member of the Puddlestone Bowls Club still reads Bertram Smythe Esq, though his contemporaries call him Bertie and the younger members address him as Colonel Smythe. His brother, Bernard, and his nephew, Barry, are also members, as is Barry's wife Barbara. This was no problem when the treasurer kept the subscription records in a beautiful leather-bound book. But when they were transferred to a spreadsheet on a personal computer it caused some confusion.

There was not only the problem of having all those B Smythes to sort out, but the oldest member ended up with several entries: Bertram, Bertie and a B with and without a full stop after it. Some parties would cross-reference by age, height and home ownership, but the treasurer of the bowls club is of an era that had respect for people's privacy.

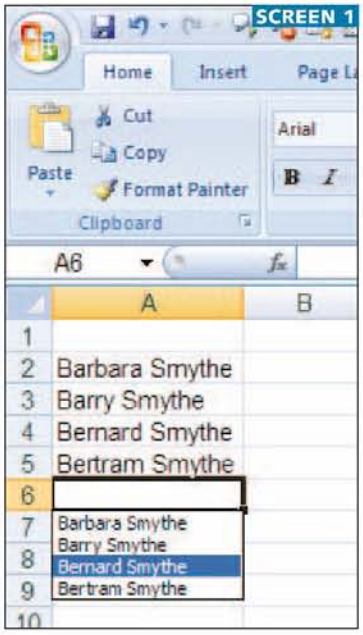
Fortunately, Excel has a number of ways to solve the problem. The first half of the solution is to go through the membership list and ensure everyone is only listed once. Excel can then create pick lists in various ways so the treasurer will not have to guess how a member's name has previously been entered. He just brings up the list and picks the right name from it.

The Picklist feature was introduced with Excel 95. By Excel 2007, Picklist had been dropped from the help files, but the feature is still available. If you have a column of text entries like club membership names all you have to do is choose the next cell in the column and press Alt & the down arrow. All the entered names are offered in a small-type list (see screen 1). Then you can pick one with the mouse or the down arrow key and it will appear in the chosen cell.

Autocomplete was also introduced in Excel 95. This is a very clever feature that will finish an entry for you once you begin typing it. It works with text, but not numbers, dates or times. To activate this feature in Excel 2007 click the Office icon, Excel Options, Advanced, Editing Options, and check the box 'Enable Autocomplete for cell values'. In versions prior to Excel 2007, you can turn Autocomplete on or off under Tools, Options, Edit, Autocomplete for cell values.

With the names in this example (Barbara Smythe, Barry Smythe, Bernard Smythe and Bertram Smythe), if you enter 'Bar' in a cell it won't complete the name until you enter another b or an r. Then it will complete the name as Barbara Smythe or Barry Smythe respectively.

The same logic applies if you enter 'Ber'. Excel will wait for the fourth character before Autocomplete enters Bernard or Bertram.



Press Alt & down arrow for a Picklist of previous entries

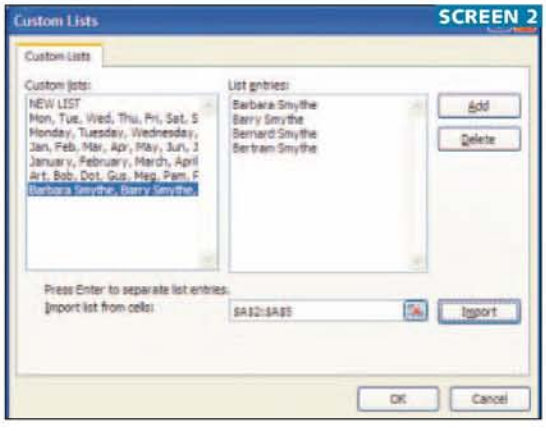
Custom lists

Every month the treasurer receives an in-tray full of annual subscription cheques and wants to enter all the Smythes at once. You can do this using Autofill and Custom Lists. In versions prior to Excel 2007, choose Tools, Options, Custom Lists and type in, or Paste in the list of Smythe names. In the Help files for Excel 2007, Microsoft says it has changed the name of the feature and now calls it Custom Tables. That is a new feature that adds Sort arrows to the column headers rather than the conventional field names.

Forget that and instead do this: highlight a list of all the Smythe names and choose Office icon, Excel Options, Popular, and click the Edit Custom Lists button. Click the Import button and OK (see screen 2). Job done, and Excel is ready to offer Autofill. It works the same way in any version.

In the preferred column, enter any of the Smythe names. Point to the lower right of that cell until a cross appears. Using the left mouse button drag the cell down the column. All the other Smythe names will be automatically entered down the column by Autofill.

Create a Custom List that can be used by Autofill





Dataforms help speed data entry in an Excel database

In the example of a club a membership list it is probably set up as a flat-file database. In other words, each row is a record of one member's account and each column is a field. Other fields might be the date when the member joined, the date when a sub has been paid, and the amount of payment. Basically, it's a list. This differs from database software such as Microsoft Access, which is a relational database. If Access was used to keep records of a library it would probably have the book titles in one list, authors in another and publishers in a third. But printouts could be co-ordinated to use information from all these related lists.

'The idea is to prevent silly mistakes and entering the same person's details more than once'

When you are using Excel to make a simple database entry it is easier to use a Data Form. In versions prior to Excel 2007 you can display Data Form logically by choosing Form on the Data menu. In Excel 2007 it's more difficult. Click the down arrow at the right of the Quick Access toolbar at the top left of your screen. Choose More Commands, then Commands Not In The Ribbon. In the new list displayed, choose Form and click the Add button and OK.

Click within your membership list and open the Data Form. The displayed dialogue box shows all the column headings or fields of your little database, with the details of the first member (see screen 3). There is a vertical scrollbar for moving between the records. Down the right-hand side of the form are buttons to add a new record at the bottom of your list, to delete a record, to find the previous record and one to find the next record. The Criteria button is used to search for records and you can use wildcards such as * and ? when you don't have all the information.

The best features of the Data Form are that it shows all the fields of your database and when adding new records it adds them to the bottom of the list without you having to reposition the active cell. Sorts, Filters and Pivot Tables are better for searching though.

Data Validation

The idea is to prevent silly mistakes and entering the same person's details more than once. Although you can use Picklists, Autocomplete, Custom Lists, Autofill and Dataforms to help with that, Microsoft has included a full-featured option to do the job. It's called Data Validation.

Make a separate list of the members' names as they are to be entered. In versions prior to Excel 2007, select Validation on the Data menu. In Excel 2007 choose Data Validation on the Data ribbon.

Highlight the cells that require data validation. Under the Settings tab of the displayed dialogue box choose List. In the 'Source:' box enter, or highlight, the separate list of names. Remove the checkmark against Ignore blank (see screen 4). Under the Input message tab, and again under the Error Alert tab, enter 'Please pick from the list' in the 'Title:' box.

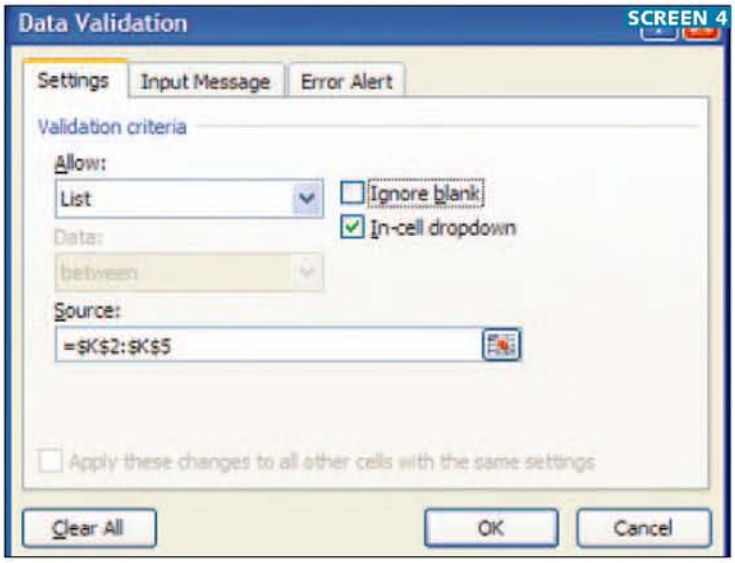
When you choose the next blank cell in the Member column, a down arrow will appear to the side of it. Click the arrow and pick a name from the list to enter. Press Enter and the correct version of the name will appear. If you enter an unapproved name an error dialogue box will appear.

If you wish to extend these Data Validation rules to another cell or range choose a cell that has the rules applied, right-click and select Copy. Choose the cell or range for which it is to be applied, right-click and select Paste Special, and then click the Validation choice in the Paste Special dialogue box. Alternatively, select a cell that has Data Validation and drag the Fill handle at the bottom right-hand corner of the cell down the column. This will extend the range of cells with Data Validation.

All names in this column are fictional. The Excel features, though, are worth remembering. **PCW**

Update your Help file

You can obtain a file called office2007-kb957242-fullfile-x86-glb.exe from the Microsoft Office Download website at **www.tinyurl.com/5ssyk9** that will install a new improved version of the Excel 2007 Help file. It will take more than four hours to download this file with a dial-up connection, so it's more suited to people with broadband.



Data Validation prevents anyone making incompatible entries



Nigel Whitfield edited computer magazines before going freelance in 1995. A specialist in internet and consumer issues, he has a degree in Computing Science from Imperial College.

→ Comments welcome on the Web development column. It returns in the June issue. Email webdev@pcw.co.uk *Please do not send unsolicited file attachments.*

Designing sites for mobile users

Decisions made when designing a website can cause a lot of work later on

Judging by the emails I receive, quite a few readers of this column are clearly interested in mobile websites. We've talked about how to optimise sites in various ways, along with some of the dos and don'ts.

One aspect of mobile site optimisation is whether or not you should do it at all – a topic that's discussed in the box 'To mobi or not to mobi?' on the next page. Arguments can be made either way, but in the rest of this month's column I'll be looking at how to handle the practical aspects of updating your site.

Where we are

The particular set of pages that I'm considering updating allow visitors to my site to remotely program their digital TV recorder, either to search the EPG (electronic programme guide) for a specific programme or to set a recording for a specific date, time and duration. It's the only section of the site that's designed for mobile use, because it's the section most likely to be used when you're mobile.

The site's coded in PHP and all the pages in the section rely on a function that's in a library file called moblib.php, which is where I've put things relating to mobile access. Screen 1 shows what the site looks like in a desktop browser, while screen 2 shows what happens when you access the same page via the Nokia mobile browser.

But iPhone users need something a bit more sophisticated; the text links might not be so easy to see and, further down the screen, larger options on the form will be useful as well.

How do we get this far? Well, this is part of what's in our mobile library:

```
function isMobile() {
        return↙
preg_match('/Symbian|MIDP|↙
Nokia|SonyEricsson|UP.Browser|↙
Smartphone|iPod/',S_SERVER↙
['HTTP_USER_AGENT']) ;
}
function brokenMobile↙
Browser() {
// some browsers don't seem ↙
to populate hidden form fields
        return↙
preg_match('/SEMC↙
-Browser/',S_SERVER[↙
'HTTP_USER_AGENT']) ;
}
```

(Key: ↙ code string continues)





Above: Thanks to a new style sheet and a PHP function call, this page...

...turns into this when viewed on a mobile browser (left)

In the pages within this section of the site there are a few simple tests. The isMobile function is used to choose which style sheet to load, and reversed to turn on the <DIV> tags that are needed for the main layout and to load the contents of the side navigation panels, like this:

```
<?php if ( ! is↙
Mobile() ) { ?>
<div id="masthead">
  <div align="center">↙
<ahref="../index.php"><img↙
src="../images/timerbar.jpg" ↙
alt="Go back to home page" ↙
width="700" height="100" ↙
border="0"></a></div>
```

Air or light?

For a long time now, if you wanted to deliver applications on the internet the most sensible choice has been Adobe's Flash. While it may have begun life as a tool to create animations you skipped at the beginning of websites, it's now a fairly indispensable part of many sites, providing enriched navigation options, fancy adverts and, of course, streaming video. Flash and its junior sibling Flash Lite, enable you to access many sites on different platforms, and it's arguably the best choice for anyone wanting to put video online; so-long, Real Networks.

But it's not the only kid on the block. Microsoft's Silverlight offers similar functionality and Adobe Air allows web applications to run on the desktop. When it comes to desktop deployment, Tim Anderson, who writes the Visual Programming column, is the person to speak to, but from a web perspective I'm interested to know if you're tempted by Silverlight. Are you curious about the possibilities of making tools from your site work offline?

```
</div>
<div id="mainnav">
<?php require('../navleft.php') ; ?>
</div>
<div id="bodytext">
<?php } ?>
```

Similarly, we can drop in the text-based navigation in the same way. For some of the pages we use the brokenMobileBrowser function to tell people they can't use a page from their phone. That is because in the form we use hidden fields to pass some information back, including a form element that Dreamweaver added for us, which some mobile browsers reject. We could work around it by recoding bits of the page.

Where we're going

Screen 3 shows what one of the site users has suggested as a more iPhone friendly look for the timer setting screen; thanks to Gavin Law, who created the mock-up with Joe Hewitt's iUI tool (**www.joehewitt.com/blog/introducing_iui.php**).

There's no doubt that this is a cleaner implementation of the form than the original web page, but it does look a little, well, iPhoney. So, while it would be possible to just give the form a makeover in this style, it wouldn't fit with the rest of the site. So, how do you make an iPhone version? The answer is that you wouldn't start from here.

It's easy to create a new test in the moblib file based on the HTTP_USER_AGENT, which contains 'iPod' for both iPod Touch and iPhone. But then what? Joe Hewitt's iUI provides useful stylesheets and scripts so, for instance, on/off options on web pages can have iPhone-like sliders to set them. But if your code is anything like mine you'll have to work that script into your existing code with a large set of PHP if statements. And, since many of the pages were created originally by Dreamweaver, there's a lot of database code at the top of each one, plus a little in the middle.

The simplest option is to design new pages that are optimised for the iPhone – and then, perhaps, to give users a preferences setting so they can choose if they want to view those by default, or the 'real' pages instead.

But what about all that code? Create another set of pages and you have double the number of queries and recordsets to worry about if you make any database changes.

One option is to take out the database code at the top of each file and turn it into a PHP include – you can do this fairly easily by copying and pasting and then simply adding a require statement, along the lines of

```
<?php require 'newtimers_db.php' ?>
```

with a similar function in each page for its own database code. Then you can have iPhone or other specific versions of the page, but just one set of common database code to maintain. One problem doing this, however, is that you'll probably break Dreamweaver's drag and drop functionality for adding fields to the page – so don't do it until you've got everything in place.

An alternative might be to strip out the guts of the page itself; leave the database code in place, and include a specific version of elements such as forms, optimised for the type of device on which they're being displayed.

The big problem is that, since the code and the design aren't entirely separate, it's not so easy to say to someone "Sure, design me an iPhone page, and I'll add it to the site." Somehow, you have to integrate it with your code – and often it can take almost as long to explain your code to someone as to do it all yourself. If any readers have tackled this problem – other than by starting again – let us know which option you chose. **PCW**



A slicker look, for sure, but how much work is it to implement on an existing site?

To mobi or not to mobi?

PCW reader, Tim Boddington, writes: "In 2006 .mobi was introduced as a TLD (Top Level Domain) for mobile devices. This seemed like a good idea and I produced a very simple site with data from my main site. Now it seems that with the introduction of smartphones, together with the fall in data transmission costs, the capabilities of phones are so much greater that users will just go for the main sites."

It's a good point. The number of phones browsing the web is increasing, but not necessarily because more people are using the limited phone browsers. Much of that increase seems to be driven by people using browsers on devices such as the iPhone, or Operamini on a range of different phones – designed to give a desktop-esque experience.

People will still use simple mobile browsers though – especially if the recession leads to fewer of us spending money on upgrades. But even where there's a case for creating pages in the .mobi domain that work best on cut down browsers, it will seem odd if the '.mobi' extension on a domain comes to mean 'cut-down and lacking in functionality'.

There's an issue too whether it's right to force people with specific browsers into specific versions of your website. Arguably if you know someone's using a very basic phone browser, choosing to omit certain elements can make it much easier to make sense of the page.

But new-generation devices make this more questionable, especially if you're providing a specific iPhone version of your page to offer nice large on-screen buttons to tap. Should you always force people to see that version, even though they might just want to look up something quickly? Could customising to this extent hinder usage of your site by mobile device users – especially if you can't find the time to do it for absolutely every page?

I'd be interested to hear the views of other *PCW* readers on how they're proposing to deal with these issues on their own sites.



Visit site.mobi and you can create a mobile version of your site easily – but has the idea been overtaken by modern mobile browsers?



Alan Stevens has implemented and supported networks for over 25 years, working for IT vendors, system integrators and customers. He now mostly researches and writes about networking matters.

→ Comments welcome on the Networks column.
Email networks@pcw.co.uk
Please do not send unsolicited file attachments.

Home email servers

Take a closer look at two powerful email servers, one of which is free

Back in the January 2009 issue I looked at the free version of the popular MDaemon email server with a view to using it to collect and distribute messages on a home network. All told, I found it to be a very solid solution, but was a little disappointed to find many of the features included in the full product disabled. Among them was support for Imap access, where messages are kept on the server rather than being pulled down to the client mailbox using Pop3, the only protocol supported in MDaemon Free.

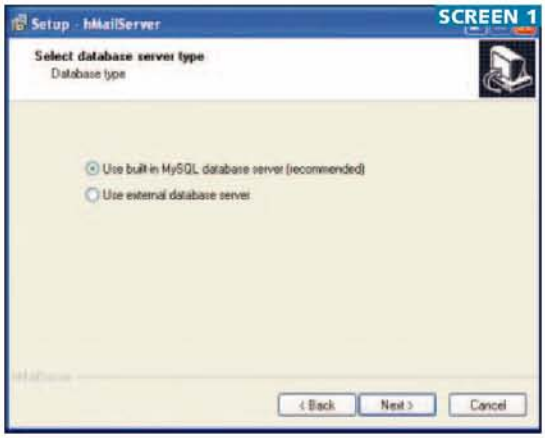
This omission could be a drawback for users wanting to access their mail from more than one PC, so I promised to take a look at another free email server, called hMailServer, which does have this option. Here's how I got on.

About hMailServer

Developed in Sweden, hMailServer is a totally free, open-source, SMTP (Simple Mail Transfer Protocol) mail server for Windows that can be obtained from **www.hmailserver.com**.

A number of different versions were available at the time I was testing, topped by a 5.0 release for use on almost any version of Windows including Vista and Windows 2008. However, v5 was still in beta at the time so I gave it a miss. Instead I downloaded the 4.4.3 release, the latest available production version for use on Windows 2000, XP or 2003.

The download was a little over 3.5MB and contained everything needed to set up and run a Windows mail server. That included an embedded MySQL database (see screen 1) although you can, if you prefer, point hMailServer at an external database during installation, with support for Microsoft SQL Server (version 7 or later) and PostgreSQL (v8 or above) as well as MySQL (v4 or later).



hMailServer comes with its own embedded MySQL engine, but you can use an external database if preferred

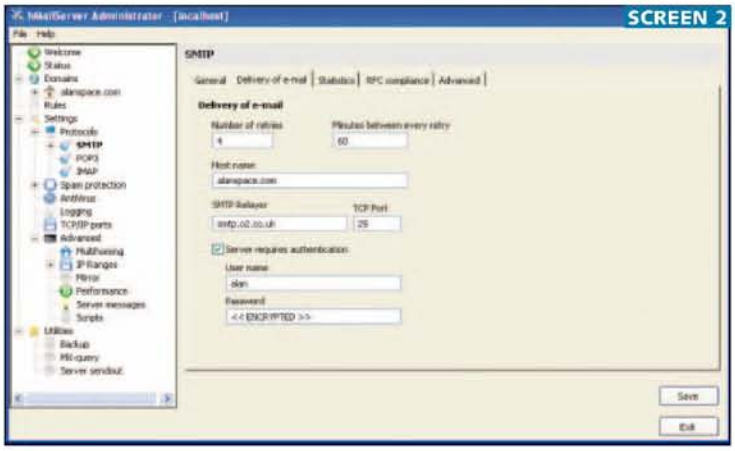
I ran the install on a couple of machines: a desktop running Windows XP, and a Windows Home Server which, as most of you know, is based on Windows Server 2003. In both cases it installed in a couple of minutes and worked with no problems whatsoever, consuming around 20MB of disk space with two background services configured during the install – one for hMailServer itself and another for the MySQL component. These are set to start automatically with management via a Windows console also created during the install process.

Managing hMailServer

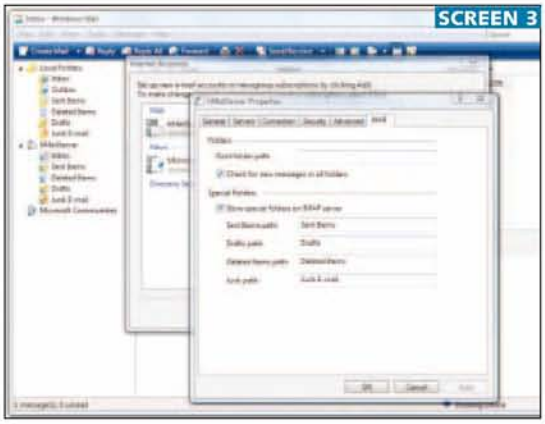
The management console can be run remotely – useful if hosting the hMailServer on Windows Home Server – and starts with a message prompting you to add a domain.

As with any email server, this is the hardest bit to get right; not the domain name itself, but making sure the name can be resolved by external email servers and users to the address of the machine hosting the hMailServer software. Some DNS and firewall changes will, typically, be required to enable this to happen and it was good to find some help on the hMailServer website explaining in detail what's involved. Both for users with a fixed IP address and the majority assigned a variable address by their ISP.

The same documentation also explains what to do if your ISP blocks outgoing messages sent using port 25 to SMTP mail servers other than its own. This is surprisingly common. My ISP (O2), for example, blocks port 25 unless you have a fixed IP address. However, it's easy to cope with, as long as the mail server can be configured to relay all outgoing messages via the ISP's 'approved' host, which hMailServer can, as shown in screen 2.



If your ISP blocks sending of messages directly via port 25, hMailServer can be configured to relay all outgoing mail via the ISP's approved host



Windows Mail on a Vista PC configured to connect to an Imap4 mailbox hosted by hMailServer

You can configure more than one domain if you want and, once created, add some user accounts for each one. These are created individually, specifying the email address to use, a password, maximum mailbox size and whether the user is an hMailServer administrator or not. You can also set up an automatic reply and forward messages automatically to another account. These and other details are all stored in the MySQL database although Active Directory can be used for authentication, if available.

By default, hMailServer supports both Imap and Pop3 protocols. There's nothing to turn on or activate, they just work, with little in the way of tuning that can be done here. All you have to do, therefore, is point an email client such as Outlook or Outlook Express at the server, choose the protocol you want to use, specify the account and password, and all should be well.

'hMailServer seemed more than adequate for home use'

This I did from a couple of PCs, using Outlook on a Windows XP desktop and the Windows Mail client which replaces Outlook Express in Vista. With both, I was able to connect using either Imap or Pop3 and immediately start sending and receiving messages via the server.

The only sticking point was making sure I set the client to logon using my full email address, not just the bit before the @ symbol, which some mail servers let you do.

A quick evaluation

I don't have facilities for exhaustive testing, but as far as I could tell the hMailServer software worked just as well as some of the proprietary products I've tried. It was quick and responsive, and certainly seemed more than adequate for home use. You even get built-in backup and anti-spam tools plus facilities to scan for viruses using third-party anti-virus software, with instructions on how to set up the free AVG product to do just that.

There are, however, a few things missing. You don't get any groupware or collaboration functionality, like that found in Exchange, for example, although public folders are a feature of version 5. Still, that's not really a big issue on a home server. A more important omission, however, is the lack of any facility to pull messages down from a host server using Pop3, doing away with the need to have your mail server on and publicly accessible all the time.

There's no webmail client or any special support for Windows Home Server (WHS), two things that are on offer with another mail server I've been looking at called VPop3.

About VPop3 for WHS

I'm indebted to reader Simon Ferrari for pointing me in the direction of VPop3, which, although not free like hMailServer, costs just £40. The product is well established and developed in the UK by Paul Smith Computer Services (**www.pscs.co.uk**). It can be run on most versions of Windows, with a special cut-down WHS version which, although still in beta at the time of writing, I downloaded and took a quick look at.

One disappointment with VPop3 is a lack Imap support (the name should tell you that) although it is in the more costly Enterprise edition. Still there's a lot to like about the product which installed seamlessly onto my Home Server, even inserting its own add-in into the WHS management console as part of the process (see screen 4).

Another nice feature is the way the VPop3 server picks up the existing WHS user accounts, doing away with the need to define users individually. New users are similarly added automatically with support for up to 10 users plus the Administrator, the maximum supported by WHS.

VPop3 integrates itself into the WHS console, automatically configuring any WHS accounts to send and receive mail



No DNS changes are needed to use VPop3 on a WHS server, as it's not designed to have messages sent to it using SMTP. Instead you configure the server to grab messages from a host mailbox using Pop3. This can be done en-masse for all users, using a catch-all mailbox (typically the email domain allocated by the ISP) and/or individual email accounts.

Outgoing messages are, similarly, all sent via a host email server with a built-in scheduler to either collect messages at preset intervals or only when outgoing mail is dispatched.

This may sound like a limitation, but in practice suits the majority of home users who don't want the hassle of a publicly accessible SMTP mail server sitting on their network waiting to receive the odd bit of mail. No DNS changes are needed and it makes it easy to collect messages from a variety of services and distribute them locally.

Again, I wasn't able to do any exhaustive testing of the VPop3 server, but it worked fine in my tests, for which I used the same Outlook and Windows mail clients plus a neat little webmail client included in the package. This also lets you manage quarantined messages trapped by the built-in spam filters and, if you're an administrator, manage the VPop3 server directly rather than via the WHS console.

There's no anti-virus option in the VPop3 for WHS, but if you want that or the ability to receive messages using SMTP, you can get the full package. Starting at £50 for five users, it doesn't offer the same level of integration as the custom WHS version but can be hosted on a home server running this or any other version of Windows.

Take your pick

So there you have it – a couple more free, or nearly free, email servers that can be run on Windows Home Server and other platforms. I found them both easy to get working with hardly any day-to-day management required to keep them that way. Neither is completely perfect (I won't go into all the niggles I had with them) but that's hardly surprising and, if you know how to work around the limitations, you should find one or the other suitable. And if you have any other favourites, do let me know. **PCW**



Mark Whitehorn is one of those lost souls who actually likes databases. He splits his time between consultancy, writing, working for two universities and tinkering with old cars.

→ Comments welcome on the Databases column.
Email database@pcw.co.uk
Please do not send unsolicited file attachments.

Views and update queries

Take a look at views and stored procedures; and solve a problem using update queries

One characteristic of a RDBMS (Relational Database Management System) is that it will allow us to create views and stored procedures. This back-to-basics column takes a look at both terms and, although neither is used in Access, close equivalents are offered.

View

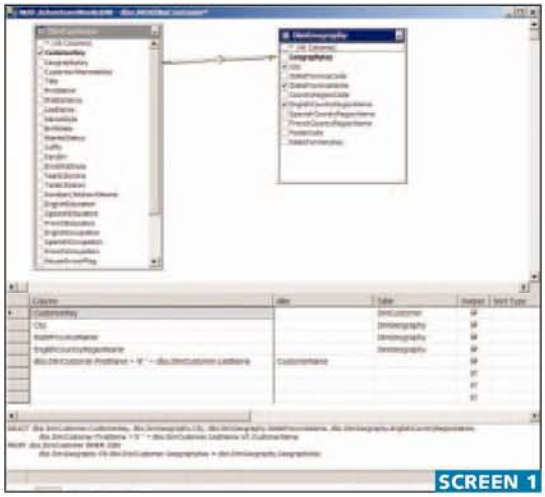
A view is like a query. Views are stored on a server, within the database itself, whereas queries are stored locally on the client and sent to the server. A view looks a lot like a table of data and, just as every table in a database has a name, each view is also named.

Views and queries are both written in SQL. A client-server RDBMS such as SQL Server has a graphical tool for building views like the one in Access for building queries (see screen 1).

Stored procedure

A stored procedure is a block of code, often including some SQL, which, like views, is stored on the server. Any application that makes use of a database (opening tables, running queries etc) can also call a stored procedure.

What are they for? Well, imagine a banking application with a set of tables holding account data. A small number of operations on these tables is deemed legitimate: opening an account, closing one, adding and removing funds. These may be operations with quite complex associated logic. For instance, closing an account might be allowed only if certain requirements are met. If the balance is zero and there are no outstanding debits, it can be closed. If any debits have been made and the balance is negative, it cannot be closed. If, after debits, the balance is positive, that can be transferred to a holding account and the original account closed.



SCREEN 1

The graphical query/view builder in SQL Server

The complexity of such systems means that we don't want people to have direct access to the tables because it would be too easy for them to close an account simply by deleting records, without applying the full set of rules.

To avoid this problem, you can write a stored procedure called 'Close Account' which executes the logic and performs all the required checks. Indeed, you can write procedures for all the legitimate account operations. Then all direct access to the tables is denied. Instead, the only way in which the tables can be updated is by using the stored procedures.

RDBMS and OO

There has been much talk about RDBMSs and their failure to embrace object-oriented (OO) programming, but this isn't really accurate. If you decide to write stored procedures to handle data in the way described above, you could argue that you've created an object called an account and attached it to a series of methods (your carefully crafted stored procedures). I am well aware that this doesn't make an RDBMS fully OO compliant – there are whole chunks missing, such as polymorphism and inheritance. However, you can factor some OO functionality into your relational database.

Access has no direct equivalent to stored procedures, but using the built-in Visual Basic you can write functions and other code that can mimic much of the behaviour of stored procedures.

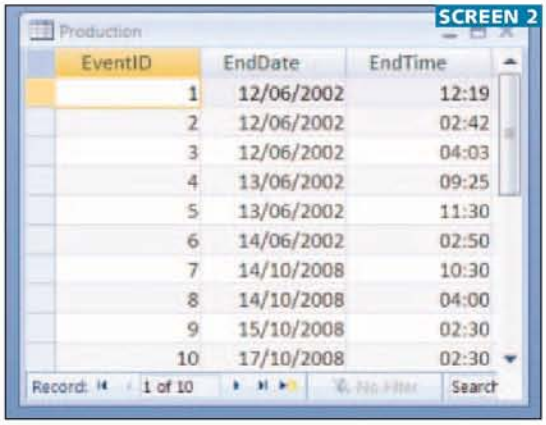
Minute manager

PCW reader Toby Glover has a problem: he needs to edit thousands of database entries and doing it manually is too mind-numbing to contemplate.

Toby has a factory production database that records the time and date certain tasks are completed. The data has been collected over many years. However, over time, the way the data has been entered has changed. The current convention is to enter a rounded time to the nearest half hour, but in the past values such as 11:42 and 03:03 have been entered (see screen 2).

So he can run a sensible analysis over the entire set of data, Toby wants all times to be rounded to the nearest half hour, so 11:42 becomes 11:30, 03:03 becomes 03:00. The good

The table of times: values collected in the recent past have been rounded to the half-hour, earlier ones haven't

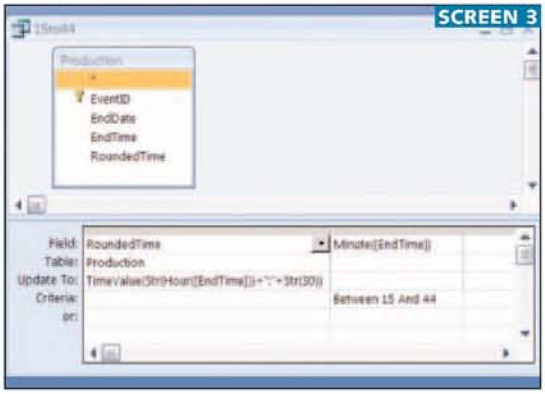


SCREEN 2

Production

EventID	EndDate	EndTime
1	12/06/2002	12:19
2	12/06/2002	02:42
3	12/06/2002	04:03
4	13/06/2002	09:25
5	13/06/2002	11:30
6	14/06/2002	02:50
7	14/10/2008	10:30
8	14/10/2008	04:00
9	15/10/2008	02:30
10	17/10/2008	02:30

Record: 1 of 10 Search



This update query will round times in the 'bottom' half of the hour

news is that all recorded times are between 08:30am and 06:00pm so we don't have to worry about times around midnight.

My solution uses three update queries. One deals with the 'bottom' half hour (from quarter past to quarter to). The second deals with the quarter after the hour. The third one deals with the quarter before the hour where the hour value has to be rounded as well as the minute value (ie 04:52 becomes 05:00).

'If our data manipulation is perfect checking is unnecessary, but in reality it's essential'

It is possible to use these update queries to overwrite the data in the time column, but an alternative is to create a new column and write the rounded figures into that. This makes the table slightly larger, but the huge advantage is that it allows us to eyeball the data after the conversion. Of course, if our data manipulation is perfect then checking is unnecessary, but in reality it's essential. Once we are sure the conversion worked, we can always delete the original column. So add a new Date/Time column, RoundedTime, to the table and set its format to Short Time.

Quarter past to quarter to

The query for the bottom half hour (called 15to44) is shown in screen 3, and here's the SQL:

```
UPDATE Production SET ↙
Production.RoundedTime = ↙
TimeValue(Str(Hour↙
([EndTime]))+":"+Str(30))
WHERE (((Minute([EndTime↙
])) Between 15 And 44));
```

(Key: ↙ code string continues)

The second column in the query (the WHERE clause in the SQL code) identifies the rows we wish to update and ensures the query only runs on times between a quarter past and a quarter to.

```
Minute([EndTime])
```

uses the Minute function to extract the minute part of the date and the criterion:

```
Between 15 And 44
```

uses the Between...And operator to identify the minute values between 15 and 44 inclusive; if we used 15 to 45 we would be taking 31 of the possible 60 minutes, which would bias the roundings. In our sample data a time such as 11:42 will be updated by this query.

Let's look at the heart of the query:

```
TimeValue(Str(Hour↙
([EndTime]))+":"+Str(30))
```

starting in the middle with:

```
Hour([EndTime])
```

Hour is a function that returns the hour part of a time, so, given a time of 11.42 in the EndTime field we get the number 11. Adding the Str function to the expression:

```
Str(Hour([EndTime]))
```

converts the numerical 11 returned by Hour into a text string '11'.

The code added to the end:

```
Str(Hour([EndTime]))↙
+":"+Str(30)
```

uses the + symbol to link the text 11 with a colon (used to separate hours from minutes) and the final:

```
+Str(30))
```

links the text '30' to the '11:' to give 11:30. The complete expression:

```
TimeValue(Str(Hour↙
([EndTime]))+":"+Str(30))
```

uses the TimeValue function to turn the string we've just built back into a time. Where the minutes are between 15 and 44, we turn the minutes to 30 and leave the hour value as it was.

A good question at this point is "Why have you messed around like this – chopping up the time value with Hour and Minute, converting some of the bits into strings, adding the strings together and converting the string back to a time again?" The answer is that it seemed to be the easiest solution and the conversions allow us to manipulate the dates in a reasonably understandable way. But if you find a neater way to do it, please let me know.

The first quarter

For the quarter hour after the hour we use the update query called 0to14 and the expression it uses is:

```
TimeValue(Str(Hour↙
([EndTime]))+":"+Str(0))
```

for minutes between 0 and 14. We add just one zero to the end because once it's converted by the TimeValue function and displayed as a Short Time, it gains a second zero and 04:03 appears as 04:00.

The last quarter

For the quarter hour before the hour (update query 45to59) the expression is as follows:

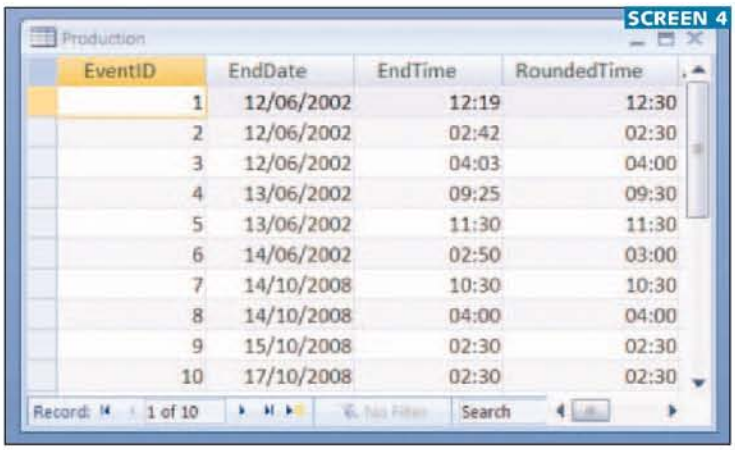
```
TimeValue(Str(Hour↙
([EndTime])+1)+":"+Str(0))
```

for minutes between 45 and 59, and 1 is added to the hour part of the time so that the hour in 04:52 is rounded up to 05:00.

This table with new data in the RoundedTime column is shown in screen 4. Once the three update queries have been written we simply run them against the data. The sample database, DBCApr09.mdb, is on this month's cover disc.

End note

Mark has been writing the database column for the past 15 years and the best bits are available in a book: visit **www.penguinsoft.co.uk** for details. **PCW**



The RoundedTime column holds the new data generated by the three update queries



Tim Anderson is an IT journalist and software developer, and began writing for PCW in 1993. Since his first Commodore Pet, he has acquired expertise in Rad programming, Windows and the Internet.

→ Comments welcome on the Visual programming column.
Email visual@pcw.co.uk
Please do not send unsolicited file attachments.

Grappling with gadgets

Discover how to create a Windows gadget and some new uses for C++ on the web

Windows Vista supports gadgets; mini-applications you can display on the sidebar or drag to the desktop. Gadgets will also work in Windows 7, now in beta. They are somewhat improved because they live directly on the desktop and can be displayed at any time using a new desktop peek feature: hover the mouse over the 'show desktop' icon at the right end of the Taskbar and application windows become temporarily transparent, letting you inspect any desktop gadgets.



The Countdown gadget on the Vista desktop counts down to an important event

Create a Windows gadget

Gadgets are easy to code and make a fun project. Here is an example called Countdown. The Countdown gadget is great if you have an important event or celebration to look forward to (see screen 1). It counts down the remaining days and alerts you when the moment arrives.

Windows gadgets are HTML applications that consist of two or more files in a folder. In order to be recognised, the folder has to be in a special location. There is a per-machine location and a per-user location, with the latter being the most convenient for development. Create a folder called countdown.gadget in: '%USERPROFILE%\AppData\Local\Microsoft\Windows Sidebar\Gadgets' where '%USERPROFILE%' is usually 'c:\users\username'. You can create a desktop shortcut to this folder.

The most basic gadget is just two files: a manifest and an HTML page. The manifest is a short snippet of XML, which includes the name of the HTML page; the HTML page is the user interface of the gadget itself. This is rendered by Internet Explorer 7, so there are few limitations on what you can include, though you need a small page size. One interesting possibility is to host Silverlight, though early adopters have found that some workarounds are needed. A gadget does have access to the local file system and is similar in many respects to a Windows HTML Application (HTA).

The body of the Countdown gadget looks like this:

```
<body onload="init()">
    <g:background ↙
id="background" ↙
src="transparent.png" ↙
style="position: absolute;
       top: 0; left: 0; ↙
z-index: -999; no=repeat;" />
    <div id="frame">
        <div id="countdown">
            123 days</div>
        <div id="towhat">
            until what</div>
    </div>
</body>
```

(Key: ↙ code string continues)

The init() function loads settings and initialises the gadget, while the two div containers will be updated dynamically with the latest data. The <g:background> element is one of three presentation tags specific to gadgets. In this case it sets the background to a transparent bitmap.

Countdown.html has four Javascript functions, which you would normally save in an external file, but for this example that is not necessary. The functions are:

`timeUntil(targetDate)`: a utility function that calculates the time remaining before the specified date.

`update()`: calls timeUntil, and updates the div areas with appropriate text.

`init()`: loads values from settings to set two global variables, a string that describes the event (theWhat) and the date it takes place (theWhen). Finally it calls setInterval to set up a timer to make regular calls to the update function.

`settingsclosed(event)`: an event handler that fires when the setting dialogue closes.

There are global variables and statements at the top of the script block:

```
var theWhat;
var theWhen;
var intervalid;

// Handler for the settings ↙
closing event.
System.Gadget.↙
onSettingsClosed = ↙
settingsclosed;
//create a settings UI
System.Gadget.settingsUI = ↙
"settings.html";
```

The settings dialogue, formed by a simple HTML table



Google and Adobe breathe new life into C and C++ on the web

Both Google and Adobe have research projects that give new life to C and C++ code on the web. These languages compile to native code, which is normally considered unsafe for code that runs in the browser. Browser plug-ins and ActiveX controls are an exception, but these have to be signed and specifically trusted by the user, and are a common source of security issues. What if you could run C or C++ in the browser without security concerns? The outcome would be web applications that have all the richness and performance of the desktop.



Alchemy compiled C code to calculate prime numbers, but ran a little slower than the equivalent Actionscript

Google's Native Client

Google's Native Client project allows native code to run within the browser, without troubling the user with a security prompt, because the Native Client module is doubly sandboxed. First, there is a Native Client container, which is a browser plug-in, that validates the code. This is how Google's engineers explain it: "The inner-sandbox uses static analysis to detect security defects in untrusted x86 code. Previously, such analysis has been challenging for arbitrary x86 code due to such practices as self-modifying code and overlapping instructions. In Native Client we disallow such practices through a set of alignment and structural rules that, when observed, ensure that the native code module can be disassembled reliably, such that all reachable instructions are identified during disassembly. With reliable disassembly as a tool, our validator can then ensure that the executable includes only the subset of legal instructions, disallowing unsafe machine instructions." Read more at **http://tinyurl.com/6l97qz**.

Second, there is a further check of all system calls made by the Native Client module against an approved whitelist, forming a second sandbox. Google claims only a 5-12 per cent overhead compared to a normal executable. A further advantage over Javascript is that multiple threads are available. There is preview code available now, but only x86 code is currently supported (on Mac, Windows and Linux), though Google says other platforms can be added in future.

Adobe's Flash Alchemy

Adobe's Alchemy project compiles C or C++ to Actionscript, the language understood by the Flash virtual machine (see screen). Adobe says the primary benefit is re-use of existing library code, but performance can also be better than normal Actionscript. Alchemy subverts the normal way Actionscript executes, by creating a special byte array that becomes the memory available to compiled applications. Adobe put a hook into Flash Player 10 specifically for this purpose. Alchemy applications have their own internal type system, complete with pointers, and can allocate and free memory from this array. You lose the safety of normal Actionscript programming, but potentially gain performance since the virtual machine does less runtime checking. Bugs can crash your code, but it is still sandboxed and should not have wider consequences. Compiled Alchemy code is no more human-readable than compiled C code.

Alchemy uses open-source development tools including the GCC compiler and another project called the Low-Level Virtual Machine (LLVM), which compiles C /C++ to optimised intermediate code. It is more convenient to develop on Linux or Mac, but you can also use Windows with Cygwin to emulate a Unix environment. The preview toolkit converts your C/C++ code to a Flash SWC, a code library that you can reference in Flash Actionscript projects.

Alchemy is impressive – it enables re-use of existing code and proves that even the Flash platform can accommodate languages other than Actionscript. Adobe claims performance improvements over standard Actionscript of up to 10 times, though still much slower than native executables. In my tests Alchemy code ran slightly slower than equivalent Actionscript. There is an overhead to Alchemy, and all Actionscript is just-in-time compiled anyway, so results vary according to what kind of code you are running.

The settings.html file has a table with four input fields. It could be improved by a Javascript date selector. It has two functions: loadsettings(), which initialises the fields from existing values, and closesettings, the event handler that fires when the dialogue closes.

How to save settings

The Windows Gadget API includes provision for a settings dialogue (see screen 2), and for loading and saving settings. You use two methods:

```
System.Gadget.Settings.writeString()
```

and

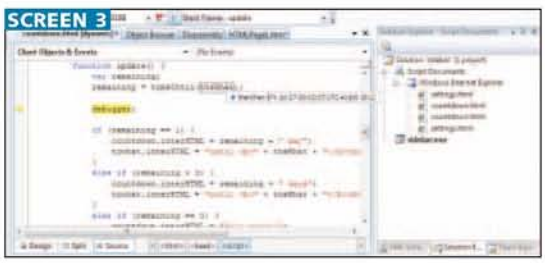
```
System.Gadget.Settings.readString()
```

to save and restore key – value pairs.

During development if you save settings and then remove Gadget to make some changes, the settings do not persist. Even if you simply remove and replace the gadget from the sidebar, the settings disappear. This is because settings are saved per gadget instance and when you remove the gadget you delete the instance. This is not just a matter of removing it from memory, rather it is to do with Microsoft's concept of gadget instances. You can have several instances of the same gadget, each with independent settings, and for this to work properly each instance must have isolated settings. So you either need to be cautious about removing instances, or to subvert the built-in system with an alternative.

You can debug a gadget in Visual Studio

SCREEN 3



Debugging a gadget

Debugging a gadget is easy in Visual Studio or another suitable debugger. Go into Internet Explorer's Options – Advanced, and enable script debugging. Next time you hit an exception in your gadget, you will be prompted to select a debugger. Choose Visual Studio and the code opens there, allowing you to check variable values and step through the code (see screen 3). **PCW**

Resources

Windows Gadget developer guide:
http://tinyurl.com/8lkow7
HTA Developers Center:
http://tinyurl.com/dwpk9
Code for this example:
http://www.itwriting.com/pcw
Google Native Client:
http://code.google.com/p/nativeclient
Adobe Alchemy:
http://labs.adobe.com/technologies/alchemy



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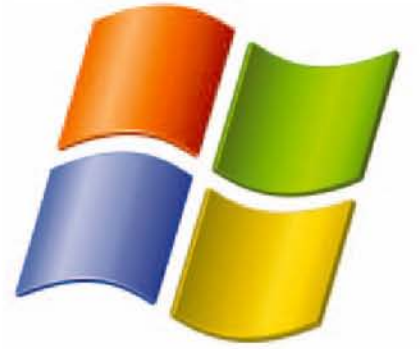
Personal Computer World

NEXT MONTH

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Master the Windows Registry

The Registry is at the heart of all versions of Windows, and is usually something you don't need to touch. But sometimes a simple Registry tweak is much easier than fighting your way through dozens of obscure system menus. We'll show you all you need to know about taking control of this vital Windows resource.



Customise your blog

Ever wondered how to get your Wordpress blog looking more professional? We'll show you how to use free and paid-for resources that will help get your blog looking just right.



Networked media drives

With streaming media servers built in, the latest network-attached storage (Nas) units can store your most important data and make sure that music, video and photos are available to view anywhere in your home. Our group test rounds up 10 of the latest of these flexible servers for your home-entertainment network.

Draft-N wireless routers

First or second-generation wireless networks aren't up to the speeds required for streaming high-quality video, or just moving large files around. In this group test we'll be looking at the latest crop of 802.11n wireless routers, to see what's available, whether you're using ADSL or cable broadband.



There's lots more in May's PCW DON'T MISS IT...

APRIL 2004

From the archives: Take a look at the important events in technology five, 15 and 25 years ago.

These early tablet PCs did not exactly sweep the world but they were a lot more expensive than equivalent standard models, a little underpowered for the task and manufacturers still had some strange ideas about what was portable. Products have got a lot smaller and more powerful, and with touch-savvy Windows 7 on the way, perhaps the tablet's time is soon to come.

Projector prices took a long time to come down by the standards of the IT market, and this Relisys cost nearly £2,000 – £1 per Ansi lumen of its brightness rating, as it happened. Unsurprisingly it was targeted mainly at the business market.



Funny how dated the term PDA sounds already. As these models were all Wifi-enabled they would technically qualify as what Intel calls a Mid – a mobile internet device. But even five years ago the PDA was being superseded by the smartphone, with basically the same functions plus telephony, in all but niche markets. Apple's iPod Touch is the only big seller in this class today.

Cautionary words from Barry Fox on the potential problems of using household wiring to carry data. They fell on deaf ears and the technology has gone mainstream. No-one knows the cumulative effects of millions of installations radiating shortwave in a city, so we hope you are not on the first airliner to find out.

APRIL 1984

A strange letter told the story of a *PCW* reader from Chatham, Kent, who had a run-in with computer-aided hypnosis that ended up with someone being put on probation for trying to hijack the 16.22 train from Victoria to Folkestone. The judge must have believed the story, even if it does seem a little tall from this distance. The Red Sea pirates could try it if they end up in court: "Yes, your honour, it was Bill Gates' fault. Windows mesmerised me into making off with this supertanker."



This issue also featured two machines described as portable, though they would barely qualify for the term luggable. They show, though, that even 15 years ago people already hungered for computing on the move.

Readers were also already looking at a topic we address in our news section this month – how and whether to replace the Qwerty keyboard. One suggestion was a piano that played back letters as notes so that you could tell without looking if you had pressed a wrong key. That idea must have struck a wrong note with the industry.

APRIL 1994

Fifteen years ago CD-Rom drives were a relatively new technology, and we featured a group test of 15 models. Top spot went to NEC's Multispin 3x – triple-speed meaning it read 450Kbytes/sec.

We also looked at colour screens on notebooks, another technology we now take for granted. In 1994 dual-scan displays made colour relatively affordable.

Nine PCs using the new Pentium processor were also tested. This was supposed to make computers powerful enough to run a GUI (see Retro Special, page 14). The first products were only just beginning to hit the market and they were a disappointment – slower at some tasks than the fastest, previous-generation 486s. This was partly because software was not optimised for the new chip. *PCW* advised readers to wait for the 100MHz Pentium, scheduled for release later that year, which did live up to expectations.



Equally avant-garde, we looked at eco-friendly monitors – a subject that also finds echoes in this month's news pages (see page 10).